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INTERNATIONAL AGRICULTURE AND TRADE REPORTS

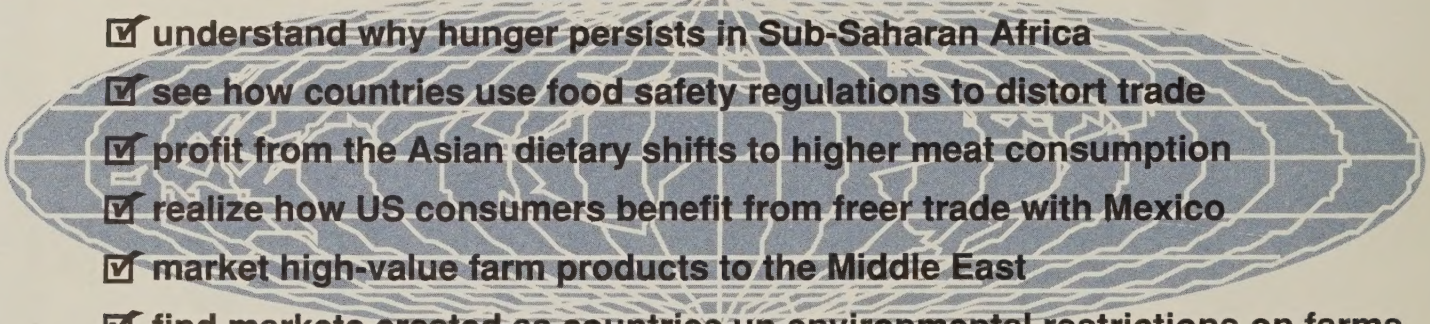
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INTERNATIONAL AGRICULTURE AND TRADE REPORTS

FORMER USSR

Situation and Outlook Series

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Summary

Economic reform in the nations of the former Soviet Union (FSU) has been slow and difficult. The Baltic States have pursued the most ambitious reform programs, followed by the Russian Federation. The two main reform changes in Russia have been price liberalization and the beginning of privatization.

In every FSU country in 1992, national income and industrial and agricultural output fell substantially. The short-run disruptions caused by economic reform are responsible for part of the decline, as the transition from a centrally planned to a more consumer-oriented market economy changes the structure of production and consumption. The large rise in prices following price liberalization has reduced demand for many goods, and output has fallen accordingly. The need for certain industries to downsize, however, involves the threat of enterprise bankruptcy and unemployment. On the other hand, the re-deployment of resources in response to the increasing role of markets should be a means by which the FSU republics grow richer and better satisfy consumer desires.

Another cause of falling output is continued high inflation, which reduces incentives to work, produce, and sell goods. A major cause of inflation is that governments are resisting moving toward a market economy by extending subsidies and soft loans to farms and enterprises threatened with downsizing. A difficult tradeoff is between maintaining existing enterprises and jobs and restructuring and reducing inflation.

Within agriculture, the livestock sector is facing strong pressure for restructuring. Evidence indicates that by the late 1980's per capita consumption of meat and other livestock products in the former USSR was substantially higher than in other countries having about the same level of per capita Gross National Product. The reduction or elimination of large subsidies to both livestock producers and consumers that accompanied the 1992 price deregulation in the republics lowered consumer demand and worsened producers' terms of trade. As a result of the fall in real consumer income from overall inflation, consumers have switched from livestock products to less expensive bread and potatoes.

Price liberalization and subsidy reduction also sharply raised the relative prices of many farm inputs. For this reason, as well as disruptions involving distribution, the quantity of inputs used in production fell for most agricultural goods. Evidence suggests that the marginal productivity of some agricultural inputs is low, such that the effect of a decrease in input use on output could be small in the short run.

Livestock output and inventories fell 5-15 percent in most republics in 1992, following 1991 declines. In Russia, Ukraine, and certain other republics, the State acted in summer 1992 to slow down restructuring by reintroducing subsidies for livestock producers. Though the livestock sector is expected to continue to downsize in 1993, subsidies will make the decline smaller than it otherwise would be.

Progress was made in 1992 on privatization in agriculture, particularly in Russia and the Baltic States. By the end of 1992, 184,000 private farms existed in Russia, comprising 6 percent of arable land and contributing 4-5 percent of the year's total agricultural output. The Russian Government required that, by the end of 1992, collective and State farms re-register, the main options being re-registering as cooperatives or joint-stock companies, or breaking up into private farms. Only 4 percent chose the last option. The change in official status by the rest to cooperatives or joint-stock companies has so far done little to change the nature or behavior of farms.

U.S. agricultural exports to the FSU republics in fiscal year 1993 are projected to be down about 30 percent from \$2.7 billion in fiscal 1992. The drop reflects reductions in U.S.-Government-backed commercial credits to the republics and forecasted contractions in total FSU agricultural imports this year. Because of the severe financial difficulties facing the region, most, if not all, U.S. exports to the republics since fiscal 1991 have been covered by special USDA export programs—primarily GSM-102, but also PL 480 Title I, Section 416(b), and Food For Progress. GSM-102 credits, currently totaling over \$5 billion, have financed the vast majority of U.S. sales since 1991. Russia's default on GSM-102 payments, which from November 1992 through mid-May 1993 totaled \$850 million, resulted in suspension from further GSM-102 credits. In April, the United States announced a new \$900-million Russian food assistance package.

In fiscal year 1992, U.S. wheat exports to the FSU republics slightly exceeded \$1 billion, making the region the largest importer of U.S. wheat. GSM-102 credits and Export Enhancement Program subsidies, the latter equalling \$85 million, financed almost all the exports. The FSU was the second largest foreign market for U.S. coarse grains in fiscal 1992, with a total value of \$725 million. This made the United States by far the FSU's largest supplier of coarse grains. The United States was also the FSU's primary supplier of soybeans and meal in fiscal 1992, with exports totaling \$602 million. The U.S. share of the FSU soy market has increased substantially, as other competitors have not matched U.S. credit packages.

Total FSU grain imports in 1993/94 are projected to just top the 1992/93 estimate of 27 million tons, despite a forecasted 11-million-ton drop in 1993 grain production. Considerations underlying the FSU grain-import forecast are continuing hard currency constraints, an expected decline in availability of foreign credits and assistance, projected reductions in total grain use, and forecasted stock drawdowns. Anticipated minor changes in the State grain procurement systems of the republics, including decentralization of control over supplies and freer prices in Russia, are not expected to significantly affect estimated import demand for grain in 1993. Grain marketed outside State channels is expected to pick up this year, but will not break the States' predominant role in the milling and mixed feed sector.

Economic Reform in Former USSR Slow and Difficult

In the countries of the former USSR, national income and aggregate industrial and agricultural output all fell substantially in 1992. High inflation and the corresponding weakness of money have continued to be destabilizing problems, contributing to the decline in output. However, some of the drop in income and output can be viewed as part of the short-term costs of adjusting to a more market-oriented economic system. Reformers continue to face the economic and political dilemma that pursuit of longer-term reform goals requires short-run hardships. [William M. Liefert]

From the point of view of conventional macroeconomic indicators, the 15 republics of the former Soviet Union (FSU) all fared badly in 1992.¹ In every republic, national income (or net material product), industrial output, and aggregate agricultural output fell significantly, following declines in 1991 as well (tables 1-3). Soaring inflation accompanied falling production, as most countries had price rises exceeding 1,000 percent (table 4). Yet, in every republic unemployment remained low, less than 1 percent in most.²

Virtually every newly independent state of the FSU began 1992 with at least an official commitment to some degree of economic reform along market lines. An alternative way to examine the republics' 1992 economic performance would be from the point of view of their success in moving toward the major goals of market-oriented reform. Such an approach would put the macroeconomic figures in perspective. The nature and dynamics of reform are such that successful movement toward some longer-term objective could worsen short-run performance, as measured by a conventional macroeconomic indicator. For example, changing the economy so that enterprises respond to consumers', rather than planners', desires for goods could reduce output for certain industries. An evaluation of reform and its major goals also allows one to examine the main tradeoffs between reform's benefits and costs, and thereby help identify reform's hurdles.

If 1992 has been a disappointing year for radical reformers in Russia, Ukraine, and the other republics, they should not be disappointed because strong reform policies were enacted which then failed. Rather, governments have shied away from adopting strong and consistent reform programs, largely out of concern for the short-run costs of reform. A major worry has been unemployment that would come from enterprise bankruptcies. Inconsistent policies have delayed major reform, while contributing to the short-run difficulties.

The Russian Federation's ambitious 1992 reform led by President Yeltsin and his then (acting) Prime Minister Yegor Gaidar seems to have ebbed for these reasons. Both conservatives and reform moderates have retreated from reform because of its perceived short-term costs. By spring 1993 Yeltsin and

Table 1 -- Net material product, FSU republics

Republic	1990	1991	1992
<i>Percent change</i>			
Russian Federation	-5.0	-11.0	-20.0
Ukraine	-1.6	-11.0	-15.0
Belarus	-1.4	-3.0	-11.0
Moldova	-6.6	-12.0	-21.3
Kazakhstan	-1.7	-10.0	-14.2
Uzbekistan	1.4	-10.8	-12.9
Kyrgyzstan	-0.9	-14.5	-26.0
Tajikistan	-8.9	-9.0	-31.0
Turkmenistan	0.4	-10.6	na
Armenia	-9.8	-11.0	-42.6
Azerbaijan	-7.9	-10.3	-28.2
Georgia	-4.3	-23.1	na
Lithuania	-10.1	-6.4	na
Latvia	-3.1	-6.0	na
Estonia	1.1	-8.9	na

na = not available.

Sources: 1990 and 1991 -- PlanEcon, *Review and Outlook for Former Soviet Republics*, April 1992; 1992 -- CIS Statistical Committee, *Statisticheskii byulleten* 3, February 1993, pp. 4-5.

his small group of radical reformers appeared politically isolated. However, Yeltsin received a boost in the April 25 referendums intended to help break the reform deadlock. In a turnout of close to two-thirds of the electorate, 58 percent expressed support for Yeltsin as President, and 53 percent support for the continuation of his economic reforms.

Reform's Main Objectives

Among the various goals of market-oriented reform in the republics, two appear most important. A longer-term goal is

Table 2—Industrial output, FSU republics

Republic	1990	1991	1992
Percent change			
Russian Federation	-3.6	-9.5	-18.8
Ukraine	3.2	-10.5	-9.0
Belarus	13.4	-2.5	-9.6
Moldova	13.5	-11.5	-21.7
Kazakhstan	-23.8	-9.5	-14.8
Uzbekistan	-0.3	-9.5	-6.2
Kyrgyzstan	4.9	-9.3	-26.8
Tajikistan	-3.5	-9.0	-24.3
Turkmenistan	-24.3	-9.5	-16.7
Armenia	0.5	-10.0	-52.5
Azerbaijan	-17.7	-9.5	-24.0
Georgia	-7.7	-24.0	na
Lithuania	0.6	-2.5	na
Latvia	9.8	-2.0	na
Estonia	5.4	-7.5	na

na = not available.

Sources: 1990 and 1991 -- PlanEcon, *Review and Outlook for Former Soviet Republics*, April 1992; 1992 -- CIS Statistical Committee, *Statisticheskii byulleten* 3, February 1993, pp. 4-5.

Table 3—Agricultural output, FSU republics

Republic	1990	1991	1992
Percent change			
Russian Federation	-7.5	-11.7	-9.0
Ukraine	-3.2	-8.9	-11.0
Belarus	-15.4	-3.8	-16.0
Aggregate FSU	-5.3	-10.6	-10.0

Sources: 1990 and 1991 -- PlanEcon, *Review and Outlook for Former Soviet Republics*, April 1992; 1992 -- CIS Statistical Committee, *Statisticheskii byulleten* 2, January 1993, p. 18.

to restructure the economy by changing the mix and quantity of goods produced, consumed, and traded. A more short-term objective is to reduce inflation and thereby restore the national currency as effective money.

Economic restructuring is important because it can be viewed as the main way by which the republics, especially consumers, could grow richer. There are two major reasons why restructuring could increase wealth and living standards. The first is that, in a market system, investment and output would be

Table 4—Growth in money income and consumer prices, selected FSU republics, 1992

Republic	Per capita money income	Consumer prices	Change in per capita real income
--- 1991=100 --- Percent			
Russian Federation	750	1,570	-52
Ukraine	na	1,750	cc ²
Belarus	820	1,160	-29
Moldova	490	1,210	-60
Kazakhstan	670	1,070	-37
Uzbekistan	520	510	2
Kyrgyzstan	430	1,190	-64
Tajikistan	340	1,010	-66
Turkmenistan	710	870	-18
Armenia	280	900	-69
Azerbaijan	500	1,210	-59

na = not available.

¹ Estimated by comparing growth in per capita money income and consumer prices.

² Cannot compute.

Sources: CIS Statistical Committee, *Statisticheskii byulleten* 3, February 1993, p. 18.

geared to satisfying consumers' rather than planners' desires for goods. The second reason is that the FSU economies have much lower productivity than the developed Western countries, that is, they use much more input to produce given levels of output. Productivity growth would raise output in existing consumer-oriented industries and also free resources for development of new consumer goods and services. These two changes, the first involving demand shifts and the second spurring production and supply, would interact through markets to transform the republics' economies.

Yet, the greater the potential for increasing wealth and consumer welfare over the longer-run, the greater will be the short-term disruption and hardship caused by reform. In the near term, restructuring will require major reallocation of resources, especially labor and capital. Without State support, many enterprises, particularly those not catering to consumer demand, would go bankrupt. Because many laid-off workers would not be able to find new jobs immediately, high unemployment could result. The reforming countries of Central Europe—Poland, Hungary, and others—have suffered this experience. Yet, the short-term pain of unemployment is at least part of long-term economic restructuring that could significantly raise the countries' standard of living.

A second goal of reform, more short term in nature, is to lower inflation and thereby restore money as a workable means of exchange. Since Mikhail Gorbachev came to power in the former Union in 1985, the FSU has suffered from

debilitating inflationary pressure.³ Before 1992 inflation was kept repressed through price controls, whereas with price deregulation in the republics in 1992 the inflation became open. The high inflation, whether repressed or open, reduced incentives to work, produce, and sell goods. Disruption in the flow of industrial intermediate inputs to factories and farms upset output further. The adverse effects of inflation and the corresponding weakness of money were probably a

major reason for the 1991 fall in FSU Gross Domestic Product (GDP) of 17 percent (according to official Soviet figures), and the continued drop in aggregate output in the republics in 1992.⁴ Unlike the fall in output and employment that would be part of the short-term cost of economic restructuring, the decrease in output because of inflation and weak money is industry-indiscriminate and without long-term benefit.

Russia Begins 1992 With Reform

Following the breakup of the Union in late December 1991, the newly independent states began independence committed officially to at least some degree of economic reform. After the Baltic States, Russia has pursued the most ambitious reform program. Because of its size, its policies can strongly affect the other republics, and its reform problems are to a varying degree representative of those of the other republics. Strongly supported by President Yeltsin, (acting) Prime Minister Gaidar led Russia's reform program.

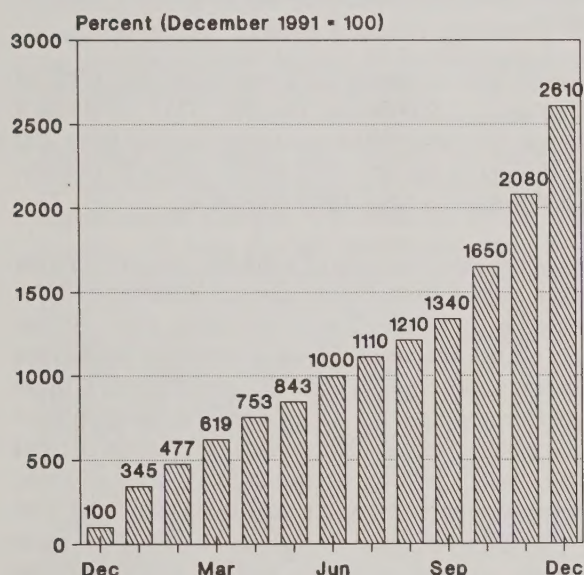
Russia began 1992 with price liberalization, its main reform measure to date. Prices were freed at the national level for most producer and consumer goods. Though controls were kept at first for certain products, such as fuel, transport, and some foods (bread and milk, for example), prices were raised considerably. By June national controls existed for even fewer products (though fuel was among them). Price liberalization also involved the reduction or elimination of most of the producer and consumer subsidies that supported the previous price system.

Price liberalization and subsidy reduction allowed the country to pursue simultaneously the goals of strengthening the ruble as effective money and restructuring the economy. Within just a few months the rise in prices eliminated the ruble overhang that had accumulated under repressed inflation. Restoring money's effectiveness required not only eliminating the surplus "stock" of money, but also substantially reducing the further growth of inflationary pressure. During the first 4 months of 1992, the Russian Government followed relatively strict fiscal and monetary policies, which kept the inflation-causing rise in money incomes in check. After an initial rise in prices of about 250 percent in January, inflation during February-April averaged about 30-40 percent per month.

Price liberalization and subsidy reduction also began the economy's restructuring toward a more market-oriented system. Not only were direct budget subsidies reduced or eliminated, but also indirect subsidies implicit in the previous price system. As is discussed in the next article, a heavily subsidized part of the Soviet economy before price liberalization was the livestock sector. Producers were subsidized with both direct budget and indirect price subsidies, and consumers were subsidized by paying prices far below real production costs. Price liberalization has created a double contraction in the sector by negatively affecting both demand and supply. Consequently, production and consumption are falling substantially. The output of many heavy and military industries is also dropping significantly.

Figure 1

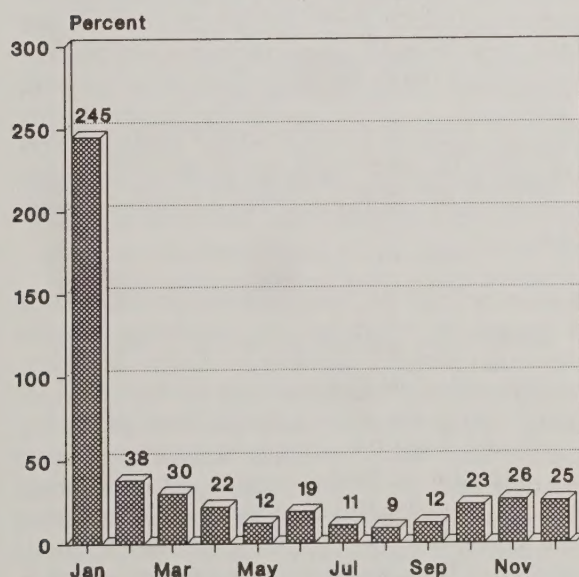
Cumulative Index of Consumer Prices, Russian Federation, 1992



Source: O razvitii ekonomicheskikh reform v Rossiiskoi Federatsii v 1992 godu (1993), p. 9.

Figure 2

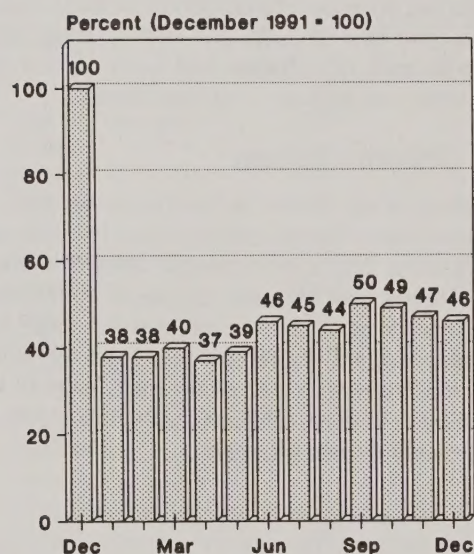
Monthly Consumer Price Increases, Russian Federation, 1992



Source: O razvitii ekonomicheskikh reform v Rossiiskoi Federatsii v 1992 godu (1993), p. 9.

Figure 3

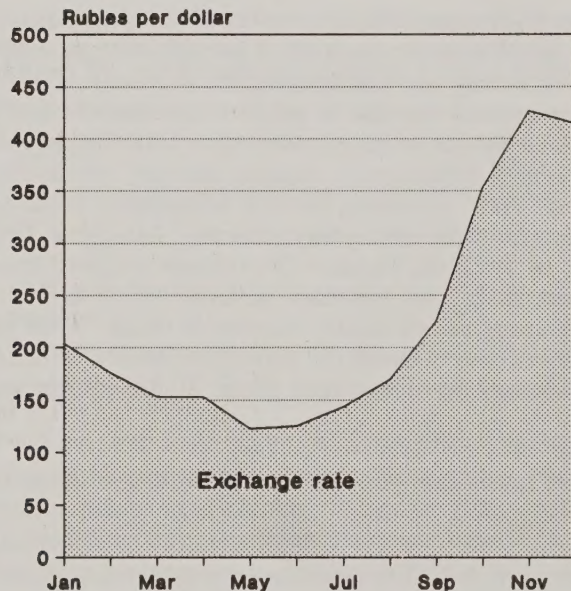
Index of Real Monthly Income, Russian Federation, 1992 1/



1/ Computed.
Source: Rossiiskaya gazeta,
1/16/93, p. 3.

Figure 4

Ruble/Dollar Market Exchange Rate in Moscow and St. Petersburg in 1992



Monthly average.
Source: Kommersant, No. 5, 1993.

Opposition to Russian Reform Starts in April 1992

By April, reform moderates as well as conservatives were concerned that the reforming government's strict fiscal and monetary policies could soon threaten bankruptcy and unemployment in enterprises and sectors that could not easily adapt to a self-financing consumer-oriented system. Many conservatives remained opposed to even the idea of market reform.

In response to strong pressure, the authorities compromised by increasing income compensation for price increases, financial support to agricultural producers, and credit to enterprises. Credit expansion in late spring led to an estimated growth in the money supply of 700-800 billion rubles. This action began a steady decline in fiscal and monetary discipline. In May subsidies were reintroduced for meat and milk producers. Also, the Russian Central Bank began to extend credit to enterprises and farms almost without limit, the apparent goal being to keep virtually every producer solvent. Although the radical reformers in Yeltsin's Government deplored the lack of financial discipline, the Central Bank is officially subordinate to the increasingly less reformist Russian Parliament.

The loose fiscal and monetary policies fuelled an inflation rate in 1992 of about 2,500 percent (figures 1-3).⁵ As a result of high inflation, the ruble/dollar exchange rate fell from 200 rubles (for 1 dollar) in January 1992 to 420 rubles in December, and to 800 rubles in May 1993 (figure 4).

The purpose of the lax extension of subsidies and soft credits was to prevent output from falling further, enterprises from going bankrupt, and workers from losing their jobs. By the end of 1992, all but the most reform-committed politicians and economists were arguing that the government's main economic concern should be to stop and reverse the economy-wide drop in output. Because enterprises can remain solvent as long as the State is willing to extend funds without limit, the goal of preventing bankruptcy and unemployment was achieved. Virtually no State or collective farms or State enterprises have yet gone bankrupt, and the unemployment rate in early 1993 was still less than 1 percent.

Despite the best efforts of such entities as the Central Bank, production in most sectors of the economy fell in 1992. Price liberalization and the demise of central planning created strong pressure for restructuring. Without the State guaranteeing orders, demand for much of the output of military and heavy industries ceased. Demand also fell substantially for consumer goods, especially those for which controls and heavy subsidies kept consumer prices far below real production cost (such as meat). Even if producers remain subsidized, consumers apparently lack the purchasing power to buy enough to maintain output at previous levels. Many workers continue to be paid to produce goods the economy no longer wants, or are being paid whether their employing enterprises produce or not.

Thus, government policies are trying to maintain the existing structure of production capability and employment, even though fundamental changes in demand are making this structure increasingly obsolete. Because most of the industries suffering falling output for this reason are those producing goods consumers least want, the fall in Russia's aggregate output figures overstates the drop in consumers' real standard of living. The main criticism of policies intended to defend the economy's existing structure of production should not be that they are failing to keep output from dropping, which, short of the full reimposition of central planning, is inevitable. Rather, the policies' main harm is that they are preventing the

redistribution of resources toward the production of goods and services that consumers most want.

Another cause of falling output is that the credits and subsidies that keep enterprises solvent and workers employed are leading to hyperinflation. Inflation's disincentives to work, produce, and sell, as mentioned earlier, continue to hurt production and distribution. It is not possible to determine quantitatively to what extent the current fall in output results from the pressures of long-term restructuring or from persistent inflation and the weakness of money. Yet, the continuing drop in output across the economy suggests that the inflation cause is still at work. Ironically, efforts to maintain existing levels of output through financial generosity to enterprises has backfired by continuing to hurt production because of the problems associated with inflation.

Although this article has focused on structural economic change, institutional change is important as a means to achieving structural change. Privatization of old enterprises and creation of new private businesses are key institutional changes required in the republics to develop a capitalist market economy. Privatization in Russia, though, moved fairly slowly in 1992. State industrial enterprises remained unprivatized, keeping their previous management. However, a system that could lead to private ownership and control of industry was introduced in October 1992. Vouchers that represent an ownership stake in enterprises were distributed in a complex formula, with managers, workers, local government bodies, and the general public all receiving shares. The shares can be traded, the hope being they will eventually be concentrated in the hands of either outright owners or "professional" fund managers. Privatization in agriculture, which is closely linked to land reform, has also been fairly modest (see next article).

At a meeting of the Russian Congress of People's Deputies in December 1992, antireformers forced President Boris Yeltsin to remove Prime Minister Gaidar, the reform's main architect. In the first months of 1993, the Russian Government has been deeply divided on economic policy between Yeltsin and his reformist ministers and the increasingly antireform forces of the Russian Parliament. In national referendums held in late April, 58 percent of voters gave support to Yeltsin as President, and 53 percent to the continuation of his economic reform program. Yeltsin had indicated before the voting that he would use victory in the referendums to change the Constitutional setup of the legislature, such that a new and more reform-minded body could be elected.

Reform in Other Republics Also Slow

Since the Union's demise, the Baltic States of **Lithuania, Latvia, and Estonia** have pursued the most ambitious economic reform programs. All three countries have generally freed prices, reduced subsidies, adopted privatization programs, and begun to create the institutions of a capitalist market economy. A major burden the Baltic States have faced is that because of their refusal to join the Commonwealth of Independent States (CIS), Russia demands that they purchase its oil and gas with hard currency at prices close to world market levels. Although this creates hardship in the short-run,

it should have the long-term benefit of requiring restructuring away from overdeveloped, fuel-inefficient heavy industry. The Baltic States appear to be sustained through their hard economic times by the noneconomic gains from the breakup of the Soviet empire that have buoyed the successfully reforming economies of Poland, Hungary, and the former Czechoslovakia. These include national independence, domestic political and cultural freedoms, and the opportunity to become integrated into the Western political and economic world.

The other non-Baltic FSU republics began 1992 with very modest reform programs. Most raised prices in early 1992, though kept controls. Subsidies were reduced, though not wholly eliminated. In many republics, planning continues much as before, but with major decisions now made in the national capital rather than in Moscow. All have suffered from inflationary pressure, which in most cases takes the form of both open and repressed inflation, as they try to protect existing enterprises and jobs with generous funding.

Ukraine, for example, was slow at starting reform. Other than raising prices, little reform occurred through fall 1992. As in Russia, inflation in 1992 exceeded 2,000 percent, while output fell across the economy. Yet, at the time Russia was retreating on reform, Ukraine began to push it more strongly when Leonid Kuchma came to power as Prime Minister in October. Kuchma claims he will reduce the budget deficit and money emission and begin privatization.

Belarus and Kazakhstan have also been cautious on reform, their main concern being to maintain traditional economic links with Russia. In **Georgia, Armenia, Azerbaijan, Moldova, and Tajikistan**, economic reform has less priority than more immediate problems involving political instability and ethnic conflict.

Economic relations between the republics is discussed in greater detail in the article on foreign trade. In short, the decline of the Russian ruble as a common and accepted currency has made barter the main means of interrepublic trade, with negative consequences for trade volumes. The non-Russian nations all fear that, like the Baltics, they will soon be required to pay higher prices for Russian fuel with hard currency. If so, they will be forced to restructure quickly away from fuel-intensive heavy industry toward more efficient and consumer-oriented production.

The Reform Dilemma

All the FSU republics face the following dilemma with respect to economic reform. In the short-run, they need to restore macroeconomic balance in order to avoid reform-crippling high inflation, and in the longrun they should restructure their economies. Yet, strong pursuit of these goals would in the short-run result in large-scale enterprise bankruptcy and unemployment. On the other hand, if the republics continue to defend the existing economic structure, they delay the inevitable costs of restructuring that market-oriented reform requires. Moreover, they weaken the economy further because the high inflation resulting from subsidies and soft credits keeps money dysfunctional, which further hurts the incentives

and mechanics of production and distribution. No simple and costless solution exists to this problem.

Within the governments of most of the republics, strong opposition to radical reform exists for reasons that go beyond the politically pragmatic question of the populace's willingness to accept its short-run costs. In Russia, the governing establishment is strongly divided on market reform. Some conservatives remain innately hostile to reform, while others oppose it because it threatens their power and privileges.

However, the main political change in Russia during the past year is that reform "moderates," defined as those who appear willing to experiment with economic reform to some degree, have nonetheless resisted the restructuring that is the very

heart of reform. Most moderates apparently either reject the argument that market reform must by its very nature restructure the economy, or are unwilling to tolerate restructuring's cost. The moderates' movement away from the Yeltsin reform camp largely accounts for Yeltsin's growing political isolation. Yet, the political failure of the Yeltsin-Gaidar "big-bang" reform counters criticism that the program failed in its economics. Resistance by moderates as well as conservatives prevented a big-bang from being implemented.

Yeltsin's relative success in the April referendums suggests that the populace will support the continuation of market-oriented reform to some degree. Yet, how the results will affect the political battle between Yeltsin and his opponents in the power structure is unclear.

Agricultural Reform in Russia in 1992: One Step Forward, One Step Back

Agricultural reforms in the FSU republics in 1992 were partial and inconsistent. As a result, although the role of the State in agricultural marketing and production has weakened, robust, countrywide, competitive markets for agricultural commodities have yet to develop.
[David J. Sedik]

The central political-economic problem of agricultural policy in the FSU republics is how to introduce a market economy while minimizing the social costs. A small group of market-oriented agricultural policymakers in the FSU would like to transform the institutions of agricultural production and commerce to encourage market forces. At the same time, both supporters and opponents of market reform would like liberalization to proceed with a minimum of production loss and social costs. To achieve these conflicting goals, the republics have followed a strategy of partial and gradual reforms and will most likely continue this strategy as the most politically acceptable in 1993.

Some progress was made in the reform of FSU agriculture in 1992. All republics: (1) deregulated or raised at least some food and farmgate prices for agricultural commodities; (2) allowed the establishment of a small number of private farms; and (3) allowed the formation of a limited number of private commodity exchanges as non-State purchasers of agricultural goods. These policy changes in 1992 have enabled market forces and consumer demand to have some effect on the agricultural economies of the FSU countries.

At the same time, policymakers cushioned producers from the economic restructuring that price deregulation, the establishment of private producers and consumer demand-driven markets entail. The economic reforms of 1992 were accompanied by (1) failure to bring inflation rates down to moderate levels, due to soft credits granted to unprofitable producers; (2) retention of the State procurement system as the main pillar of off-farm marketing of agricultural commodities; and

(3) liberal use of producer subsidies to bail out unprofitable producers, particularly in the livestock sector. These latter policies reinforced trends of the past 2 years toward barter in both inter- and intrarepublic trade, State procurement of agricultural commodities as the chief focus of agricultural marketing, and production of agricultural goods in a variety to satisfy producers and State planners, rather than consumers.

Partial and gradual reforms resulted in policy inconsistency and the slow emergence of private producers and markets, which are not yet significant enough to change the agricultural economy away from State domination. In short, real reform and restructuring in agriculture is still in its infancy in the former Soviet Union.

Russian Agricultural Reform in 1992 and the Transition to Market Agriculture

The Russian agricultural reforms were the best documented and among the most liberal in the former Soviet Union in 1992. This review covers only the Russian reforms in detail, as the general problems and strategy of reform there were similar to those in the other republics.

The transition from socialist to market agriculture requires a package of interconnected reforms, including price liberalization, macroeconomic demand stabilization, and sector-specific supplyside reforms. **Flexible prices** allow the communication of market signals between producers and consumers. **Stabilization** is important because the primary real effect of severe inflation is the breakdown of trade due to increases in the risk and uncertainty of holding money. The aim of sup-

Table 5—Barter terms of trade for grain, beef, milk, and potato production in the Russian Federation, July–August 1992¹

Commodity	1989	1991	1992	1992 (with subsidies)
<i>Tons</i>				
Grain				
Don 1500 combine	255.0	177.4	120.0	115.4
1 ton of fertilizer	600.0	400.0	611.1	587.6
Seeding machine	10.0	11.2	9.2	8.8
Beef				
Kamaz dumptruck	4.2	11.1	48.4	23.9
1 ton of grain				
Silage harvester	1.7	1.6	8.5	4.2
Milk				
Milking machine	3.7	13.1	16.9	9.9
Haystack machine	2.1	2.0	5.3	3.1
Potatoes				
Potato harvester	82.5	25.4	98.0	92.0
Potato transporter	25.0	9.6	49.0	46.0

¹Number of tons required to purchase listed inputs.

Notes: 1992 grain and potato prices are calculated. 1992 beef and milk prices are from a Goskomstat survey. Prices used for grains for 1989, 1991, and 1992 are 200, 500, and 10,000 rubles (without subsidies) per metric ton. Prices used for beef were 3,400, 5,300 and 22,200 rubles per metric ton. Prices used for milk were 700, 900, and 5,800 rubles per metric ton. Prices used for potatoes were 200, 1,000 and 6,100 rubles per metric ton.

Source: Russian Ministry of Agriculture.

ply-side reforms in Russian agriculture (such as privatization of primary producers and processors, fostering competition in processing industries, and hardened budget constraints among State-owned producers and processors) is to improve incentives by making producers, traders, and processors, rather than the State, the residual claimants of profits. Supply-side reforms are vital to the recovery of the economy, because stabilization measures tend to depress aggregate demand. Together, a package of demand and supply-side reforms can restore incentives to agricultural producers and thereby promote production of agricultural products that consumers demand.

In Russian agriculture in 1992, only part of this package was enacted, and the partial reforms implemented did not decisively change the traditional system of agricultural production and procurement in Russia. Attempts at macroeconomic stabilization were ineffective. Although price deregulation has been successful in causing the structural changes in production and consumption for which it was intended, it was diluted by the reintroduction of subsidies for producers and consumers after their initial elimination.

At the same time, there have been slow but deliberate changes in ownership and the system of marketing. Though these changes have not yet substantially affected the functioning of agriculture, they promise gradual improvement.

Price Deregulation Changes Food Consumption, Profitability, and Production

The main purpose of federal price deregulation in January 1992 was to make the pattern of production more consistent with consumer demand.⁶ In fact, price deregulation changed consumption, profitability, and production in the agricultural and food economy through a shift in relative prices (at least in the first half of 1992) and through a decrease in real consumer income. In the food economy these changes resulted in a fall in food consumption overall and a shift away from higher-priced meat to bread and potatoes.

Before 1992, the bulk of consumer and agricultural price subsidies were for livestock products. These received about 75 percent of total, retail food price subsidies in 1990. Consumer prices for meat, milk, butter, and other animal products were kept artificially low, causing shortages and granting consumers who purchased these goods an implicit subsidy. Shortages occurred not because of insufficient food supplies from the point of view of absolute dietary needs, but because low fixed prices resulted in consumer demand for these goods exceeding available supplies. Likewise, farm-gate prices for animal products were kept artificially high (in comparison to world prices), such that livestock producers received an implicit price subsidy as well.

The removal of consumer subsidies increased retail prices for livestock products more than for other (less subsidized) foods. From March 1991 to March 1992 consumer prices of pork, beef, poultry, butter and milk rose 9-13 times. In comparison, prices for sugar,⁷ rice, bread, vegetable oil and wheat flour rose 6-10 times.

The removal of producer subsidies decreased the profitability of livestock production in comparison to other (non- or less-subsidized) agricultural products. Table 5 shows changes in the barter terms of trade for various agricultural products. The figures in the table indicate how many tons of output a producer had to sell in order to purchase the inputs listed.⁸ This table shows that while the price of capital good inputs in terms of grain actually improved in 1992, those in terms of milk, beef, and potatoes deteriorated. Unfavorable terms of trade for livestock producers reduced profitability in that sector. According to Russian definitions, the profitability of livestock producers (including subsidies) was 22 percent in 1992, while the profitability of crop producers was 117 percent.⁹ Reduced profitability prompted Russian farms to reduce herd sizes and production in 1992.

Russian enterprises and farms did not raise wages to keep up with price inflation, causing a significant drop in real consumer income. The decrease in real consumer income depressed the overall level of food consumption and changed the mixture of food consumed. According to official statistics, per capita consumption of all foods, except for grain products and potatoes, fell 5-15 percent. The mix of food consumed

changed because the effect of income changes on demand for meat products (a luxury good) is considerably higher than for staple products such as bread and potatoes. Thus, meat consumption in Russia dropped 15 percent in 1992, while bread consumption increased 5-6 percent.

The reintroduction of producer and consumer subsidies in 1992 and 1993 partly reversed the effects of price deregulation. Subsidies for crop and livestock producers were announced in May 1992. Widespread local consumer subsidies also acted to reverse the effects of price deregulation. Finally, in December 1992 sizable federal subsidies to State millers and bakers were announced in order to slow price increases for bread and bakery products. Despite the partial reversal of price deregulation inherent in these measures, they do not outweigh the improvement in consumer markets from the elimination of shortages, as well as the restructuring in the livestock industry due to relative price changes and income declines.

Inflation Disrupts Agricultural Input Purchases and Procurement

Continuing inflation disrupted farm input purchases and State procurements and increased losses due to inadequate storage. Farms regularly used commodities, such as sugar, grain, meat, and cotton, to barter for inputs, spare parts, and fuel. Commodities spoiled or were ruined by storage in inadequate on-farm facilities. Deliveries of inputs purchased by barter were sporadic. For instance, veterinary medicines and mixed feed were often available only for barter. The incidence of animal disease because of poorer feed rations and reduced availability of veterinary medicines increased animal deaths (see livestock article).

The move toward barter increased incentives for farms to hold onto their commodities, rather than sell them to the State for money. Over the past few years, State and collective farms have been less willing to sell grain to the State in exchange for a currency which has rapidly lost its value. In 1992, too, grain procurements as a portion of total production were historically low. Farms kept larger stocks of grain for themselves to use for barter, livestock feed, and payment-in-kind to their workers. The rise in the portion of unprocessed or slightly processed grain in animal feed reduced its quality by reducing the protein content from already low levels.¹⁰ Poorer feed quality reduced productivity in the livestock sector.

Deteriorating State Procurement System Retained

The main problems with Russian agriculture do not lie in production *per se*, but in the sheer waste of the marketing, supply, and distribution system, as well as the inefficient use of resources and weakened incentives caused by the State setting of farm-gate prices.¹¹ The main impediments to reform, then, were the State procurement and distribution system and the setting of farm-gate prices by the State. Under this system State and collective, as well as private, farms had to sell a set portion of their output to the State and cooperative procurement agencies at prices established by the State.

Both the State procurement system and State price-setting were weakened in 1992. Farmgate prices were deregulated so that they usually followed private market prices (with a lag), and the portion of total production procured by the State dropped for a number of commodities. Table 6 shows the percent of commodities procured by the State out of total production for 1981-85, 1990, 1991, and 1992. The deterioration of the State procurement system is unmistakable in this table. The State lost its near-monopsony power for oilseeds and sugarbeets and continued to lose market power for all commodities in 1992.

Despite drastic declines in procurements in 1992, the system has not been abandoned and its retention prevents the development of robust countrywide private markets for agricultural commodities. Collective farm markets (the traditional exception to the State procurement system), barter, and recently permitted private exchanges were alternative marketing channels for agricultural commodities.¹² Exchanges, however, handled a relatively small portion of sales, except possibly for grains.¹³

Because of competition from commodity exchanges offering higher prices, the State passed a series of decrees in 1992 to ensure that farms marketed through the State procurement system rather than other channels.¹⁴ As a precondition for subsidies, State and collective farms had to market output to procurement agencies according to targets set by the State. Moreover, farms that fulfilled State procurement obligations were to receive priority in obtaining inputs from the State distribution system at subsidized prices, along with concessionary credits.¹⁵

Retention of the old system of State procurements has important consequences for Western grain exports. The procurement system for grain relied on State imports to fulfill the anticipated needs of the distribution system if procurements

Table 6—State procurements as a percentage of total production, by commodity, Russian Federation

Commodity	Average 1981-85	1990	1991	1992
Percent				
Grains	38.1	29.1	25.3	24.2
Sugar beets	90.0	77.8	76.5	42.7
Sunflowerseed	78.1	68.3	58.6	34.0
Potatoes	23.0	17.8	13.7	7.7
Vegetables	64.1	59.1	42.3	29.3
Meat	67.3	74.2	61.9	54.9
Milk	67.0	72.0	65.8	55.5
Eggs	68.1	70.8	64.8	57.0

Sources: *Narodnoe khozyaistvo SSSR*, various issues; *Narodnoe khozyaistvo Rossiiskoy Federatsii*, 1992; Ministry of Agriculture.

fell short, rather than raising domestic prices to encourage increased sales to the State. Because the procurement/production ratio for grain has been falling for many years, demand for grain imports from the West will likely continue in the foreseeable future. Moreover, State planners, rather than consumers, will still largely determine the agricultural needs of the economy. This will perpetuate a production and distribution system structured mainly to satisfy the State goal of increasing, or at least maintaining, the present level of grain and meat production, rather than responding to consumer demand.

The State procurement system in Russia is to change slightly in 1993. The federal government has announced that in 1993 it will reduce its procurement targets by 10 to 78 percent, depending on the commodity.¹⁶ Moreover, according to an agreement between the government and the Agrarian Union (representing State and collective farms) and AKKOR (Association of Peasant Farms and Agricultural Cooperatives, representing private farmers), recommended procurement prices for agricultural commodities are to rise with increases in input prices for agricultural producers.¹⁷

However, a diminished State role in procurement at the federal level may well be offset by an increased role for local authorities. The Russian Government has authorized the establishment of regional commodity procurement funds, which, it seems, will be funded locally and have no federally imposed procurement targets. It is uncertain what authority these funds will have or how much agricultural output they will seek to purchase. However, if local State procurement prices are below commodity exchange prices in 1993, local authorities will probably attempt to prevent export of agricultural commodities out of their regions, thus preventing the formation of countrywide commodity markets.

Despite Progress, Private Sector Remains Small

Reformers in the FSU consider privatization of producers and processors in agriculture as a means to increase the flexibility and efficiency of production and distribution. Increases in efficiency from privatization can increase production, independent of demand-side changes. This potential places privatization at the center of the transformation of the socialist economy. In more specific terms, privatization, first and foremost, should sever or greatly curtail the paternal financial ties of the government and agricultural producers and processors (i.e., eliminate the soft budget constraint). Encouraging the formation of private farms and companies in agriculture is also a means of increasing competition among producers and processors and fostering entrepreneurship.

Certain commodities have traditionally been produced primarily on private plots, farms, orchards, and gardens in the Russian Federation. Table 7 shows the meager data available on total private production of agricultural products and livestock holdings. In 1991 potatoes, vegetables, and fruits were raised nearly exclusively on private plots, gardens, and orchards. Grain, fodder, and technical crops were raised predominantly on State and collective farms. The large majority of livestock production and holdings were in the State sector,

Table 7—Private agricultural production and livestock herds as share of total, Russian Federation

Commodity	Average 1986–90	1991	1992	1993
<i>Percent</i>				
Potatoes	na	92.0	na	
Vegetables	na	69.0	na	
Fruits and berries	na	95.0	na	
Eggs	21.3	22.1	25.9	
Wool	21.0	28.4	na	
Meat	24.7	30.9	36.6	
Milk	23.4	26.3	31.1	
Livestock herds (on Jan. 1)				
Pigs	14.4	18.5	22.0	24.8
Sheep & goats	23.5	27.7	31.2	na
Cattle	15.9	17.3	19.7	22.2
Cows	24.1	25.7	28.2	31.2

na = not available.
Sources: *Narodnoe khozyaistvo Rossiiskoy Federatsii*, 1992; Ministry of Agriculture.

though the portion in private hands grew rapidly in 1991 and 1992 (see the livestock commodity section).

The non-State/collective farm sector now occupies a significant share of agricultural land in the Russian Federation. Total land held in (1) private plots, (2) gardens, (3) orchards, (4) individual private farms, (5) livestock collectives, (6) agricultural cooperatives, and (7) State and collective farms re-registered as associations of private farms was 10.1 percent of agricultural land in Russia on August 1, 1992.¹⁸ This share is the result of a large growth in new forms of land ownership in 1992. On January 1, 1992, the portion of agricultural land held in the non-State/collective farm ownership arrangements listed above was only 3.8 percent and on January 1, 1991, 2.2 percent.

The most rapid growth of the private sector in Russia is in land held by private farms. The legislative basis for the creation of private farms was laid in November-December 1990 when the Russian Congress of People's Deputies approved a packet of agrarian reform laws, including the Law on the Peasant (Farm) Household, the Law on Land Reform, the Law on Social Development of the Village and the Land Codex.¹⁹ These laws established the legal right for farmers to hold land, hire labor, and acquire and sell land. Any citizen of the Russian Federation is legally eligible to receive a plot of land (of limited size) free of charge or to rent land in order to set up a private farm. The local Councils of People's Deputies are in charge of distributing land to applicants. Private farms are exempt from taxes and land rent for over 5 years. Farmers may use hired labor. A Russian Land Bank

Table 8—Number, average size, and growth of private farms, selected FSU republics, 1992

Republic	Number of farms on January 1, 1992	Avg. size	Number of farms on January 1, 1993	Avg. size	Growth in number of farms	Area as portion of total arable land in republic on January 1, 1993
	1,000 units	Hectares	1,000 units	Hectares	Percent	Percent
Azerbaijan	0.1	44	0.2	39	100	0.5
Armenia	164.5	1	243.0	2	48	81.8
Belarus	0.7	22	2.0	19	186	0.6
Kazakhstan	3.3	242	8.5	412	158	9.9
Kyrgyzstan	4.1	25	8.6	44	110	26.8
Moldova	0.005	0	0.5	3	9,900	0.1
Russian Fed.	49.0	43	183.7	42	275	5.9
Tajikistan	0.004	25	0.004	25	0	0.0
Turkmenistan	0.1	11	0.1	11	0	0.1
Uzbekistan	1.9	7	5.9	8	211	1.0
Ukraine	2.1	19	14.4	20	586	0.9
Total	225.9	15	466.9	27	107	5.8

Sources: CIS Statistical Committee, *Statisticheskii byulleten*, no. 2, 1993, p. 40; *Narodnoe khozyaistvo SSSR v 1990 godu*, 1991, p. 468.

was set up to assist in the assessment, purchase, and sale of land. State and collective farm members have the right to withdraw from their collectives and take a plot of land with them.

There are, however, considerable restrictions on ownership of the land. According to land legislation, a farmer must own land for 10 years before selling it, and can sell or transfer only to the Council of People's Deputies (except for inheritance). Moreover, if the owner does not farm his land for 1 year, ownership reverts to the Council of People's Deputies.

The right to buy and sell land and the consequent creation of a genuine land market has been a bone of contention between conservatives in the Russian Supreme Soviet and liberals since the first legislation on land ownership was passed in 1990. Several laws have been enacted related to the ownership and privatization of land in the past 3 years, and the administrative restrictions on ownership in this legislation have so far successfully prevented the formation of a genuine market for agricultural land.

The Russian Central Government actively supported the formation of private farms in 1992. Private farmers were able to borrow from commercial banks at 8-percent-per-year interest rates, below the State and collective farm rate of 12 percent, and considerably below the 80 percent at which the Russian Central Bank lent to commercial banks. Moreover, the Russian Government provided subsidies to private farmers who relocated. The government also promised to fund infrastructure investment and insurance, offer tax breaks, and establish firms to supply and service private farms. Last, the government promised to set up private and joint stock com-

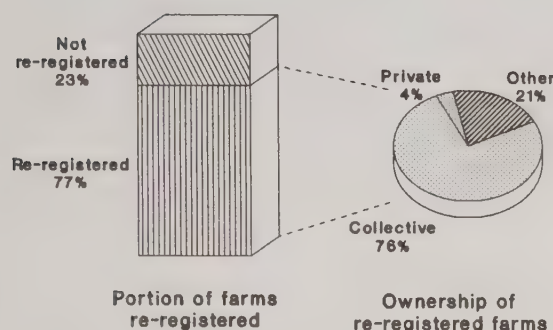
panies to process and sell finished agricultural goods.²⁰ These measures are beyond the subsidies promised to farmers and collective farms for compensation for fuel price increases, milk and meat sales, and other activities.

Despite considerable progress in the development of private farming in 1992 (table 8), its share of total Russian agricultural production is still relatively small, only about 4-5 percent.²¹ Private plots account for a much higher percentage of agricultural output, 22.5 percent in 1986-90.²² Private farmers sold only about 1-2 million tons of grain to the State in 1992 in Russia, about 4-8 percent of procurements.

In addition to legislation on individual private farms, the Russian Government required the re-registration of State and collective farms by January 1, 1993. Re-registration did not require the disbanding of these farms. It merely required them to either retain a cooperative organization or adopt new ones such as that of a private farm or a joint-stock company.²³ Figure 5 shows the results of farm re-registration in 1992. Of the farms that were re-registered as of January 1, 1993, 76 percent retained some sort of collective ownership, including State or collective farms, limited liability joint stock companies, and closed corporations. Each of these organizations is similar in the sense that ownership is vested in the State (State farms) or in the collective working on the farm (joint stock companies, closed corporations, collective farms). Only 4 percent of State and collective farms broke themselves into 43,590 private farms.

Figure 5

State and Collective Farms Re-Registered Russian Federation, 1992 1/



1/ Total number of farms: 25,609.

Source: *Krestyanskie vedomosti*, no. 9, 1993, p. 1.

Defending Producers and Consumers: The Re-Introduction of Subsidies

Beginning in spring 1992, the Gaidar Government began to backtrack from the reforms of the first quarter. As agricultural production and profitability declined, State and collective farms, State agribusiness enterprises, the Supreme Soviet, and the Russian Congress of People's Deputies (in May and December 1992) blamed the Gaidar reforms. These interests ultimately caused the Gaidar Government to reintroduce fiscal subsidies and to extend soft loans to agricultural producers. For consumers, local governments maintained price controls on some food products through the entire year, though these were limited by local budgets. But in December the federal government took steps to control bread prices.

Producer and consumer subsidies for food and agriculture dropped significantly in the first quarter of 1992, from about 12 percent of GDP in 1988-90 to less than 2 percent.²⁴ The elimination of producer subsidies was partially responsible for the fact that input prices in the livestock sector increased more rapidly than output prices. The result was that many livestock producers became unprofitable. In March, output prices covered only 60 percent of the average costs of production for beef, 75 percent for poultry, and 80 percent for pork.²⁵

The current unprofitability of the livestock sector is not surprising, given how heavily subsidized it was before price deregulation, and is part of an inevitable restructuring of production which accompanies the removal of subsidies. Eliminating subsidies has the beneficial effect of reducing the burden on the government budget and allowing the reallocation of resources away from a sector in which marginal costs

of production are so high that they exceed what consumers are willing to pay.

The Russian Government gave in to pressure for further credits to agriculture and increased subsidies. Producer price subsidies (largely for livestock producers) were partially reintroduced in May 1992.²⁶ Further increases in subsidies came in July for both livestock and crop producers.²⁷ Government promises of further subsidies were largely part of an effort to prompt producers to market their crops during the harvest. Consumer subsidies for bread to cover anticipated increases in costs of production were promised in August after grain procurement prices were raised.²⁸

In the first few months of 1993, the Russian Government reaffirmed its commitment to providing agricultural producers with subsidies, particularly for livestock products.²⁹ It also committed itself to provide the necessary subsidies to flour mills to offset the cost of grain purchases in excess of 12,000 rubles per metric ton and established a maximum 15-percent profit margin for State millers and bakers.³⁰ This legislation essentially allows prices of bread and bread products to increase only with increases in wages and other input prices, but not with the price of grain.

The World Bank estimated the cost of subsidies in the food and agricultural sector in Russia in 1992/93 at about 11.5-12.5 percent of GDP, about the same as in 1990 and 1991.³¹ In the final 1992 budget approved by the Russian Supreme Soviet, direct fiscal subsidies to agricultural producers amounted to 11 percent of the federal budget, 544.8 billion rubles (about \$1.76 billion). Included in fiscal subsidies were federally funded land reclamation and irrigation projects, other infrastructure investment, fuel subsidies, livestock price subsidies, interest rate subsidies, and grants to private farmers. Not included were payments to agricultural processors to guarantee the price of grain, federal subsidies for imported grain and food, and soft credits to producers and processors from the central bank.

One Step Forward, One Step Back

Reforms in Russian agriculture have been gradual and partial. Although prices have been partially deregulated, stabilization policy has failed, State and collective farms as well as State-owned processors have been preserved, and the State procurement system remains essentially intact. Moreover, the private sector, though growing rapidly, has yet to affect decisively the agricultural economy.

Thus, the Russian agricultural economy continues to deteriorate because reform has been partial and inconsistent. Russian agricultural reforms have amounted to the partial deregulation of prices within the system of State and collective farms, State procurements, and State-owned processors. A more viable reform would substitute private agricultural producers and processors, as well as competitive markets for the existing system and make the ruble a stable means of exchange. This was much of the key to the successful agricultural reform in China and the relatively successful economic transition in Poland.³² It could be the model of agricultural reform in Russia. Such a successful reform, though it would necessitate

large-scale restructuring, might well lead to a lesser overall decrease in output than the continuation of current policies. Moreover, the restructuring that would result would be healthy and sustainable, because the goods produced would be those that consumers wanted.

Policy inconsistency under the contradictory policies of President Yeltsin, the Central Bank and the Russian Supreme Soviet produced something akin to a reform deadlock in 1992. Without significant changes in the balance of political authority, agricultural policy in 1993 will most likely continue the trend of inconsistent and partial reforms which characterized 1992.

Recent Changes in Ukrainian Agricultural Price Policy

In 1992 Ukraine deregulated agriculture and food prices moderately. As in Russia following price liberalization, agriculture's terms of trade as a whole in Ukraine worsened as farm producer prices rose by a lower percentage than input prices. In response, farm subsidies were reintroduced in late spring 1992, mainly for livestock producers.
[Mark R. Lundell]

Until 1992, in Ukraine as well as the other republics, the State had almost complete power to set prices in agriculture (as well as other sectors). More important, however, were the existence of production targets and the widespread use of subsidies to both consumers and producers in the food and agricultural economy. Because subsidies were a large part of revenue and output targets were imposed on individual enterprises, prices did not direct producer decisionmaking. Subsidies tended to stimulate consumption over production, particularly for livestock products. The role of prices in directing consumers and producers is still not central.

Since early 1992, subsidies to consumers have been reduced and domestic agricultural prices have been partially freed. This type of deregulation has not encompassed export and import of agricultural products, which means the increase in allocative efficiency in the agricultural economy will be well below the potential rise. As this deregulation has led to rapid increases in agricultural input prices, the State has been reluctant to allow a truly free market to develop, out of fear that these price increases would be passed on to consumers. Instead, it has continued to impose delivery quotas and prop up the old system through heavy budget subsidies to producers and restrictions on price formation to limit retail price increases.

Despite little progress in liberalizing prices at all market levels and making prices direct producers' decisions, evidence from the second and third quarters of 1992 suggests that the divergence of Ukrainian agricultural price ratios from international price ratios has lessened. This indicates some positive structural price adjustment.

On one hand, in 1993 the State procurement system will most likely continue to erode and private agriculture will continue to grow. However, the gradual disintegration of the State share of production and purchases will not lead to the formation of robust, countrywide, competitive markets. This is because severe inflation and subsidy and credit policies (whereby government aid is tied to sales to the State) mitigate against the formation of unfettered markets. With inflation of 15-40 percent per month, procurement problems are both inevitable and will most likely prompt the State to increase its role in the regulation of agricultural marketing as the harvest is procured.

Changes in Pricing Institutions

Though retail food price increases in April 1991 and deregulation in January 1992 were aimed at reducing the heavy burden of subsidization borne by the State budget, the price system has not been reformed so that prices have become the main signals to which agricultural producers, processors, and consumers respond. The State's influence over price formation has been reduced, though, because private trading has been legalized. Yet, severe taxation of private middlemen has kept their role much below potential. Moreover, though marketing through the network of State-owned enterprises is supposed to be on a contractual basis agreed on by the farms and the buyers, State trading agencies exert substantial pressure on farms to sell at prices indicated by the government. A farm's ability to opt for the private marketing channel is not legally restricted, but is in practice limited by the threat of inputs being withheld. Centrally allocated inputs are provided only to producers who sell their output through the State network. In addition, State subsidies are paid only for those products sold through the State trading network. Lastly, the access of private traders to foreign trade channels is severely restricted by ministerial stipulations that make sales to the State a precondition for permission to export even small quantities.

As of January 1, 1992, the State no longer set agricultural output targets and input prices. Some food prices were also deregulated, though the prices of sugar, vegetable oil, margarine, liquor, bread, macaroni products, and many milk and meat products continued to be fixed. At the end of March 1992, meat and milk prices were decontrolled. Most remaining food product prices were freed from direct State control

starting July 1, with the exception of low-quality bread. Its price remained at the January 1992 level through the rest of the year.

Though maximum prices for retail food products were abolished in 1992 (apart from bread), for a number of products limits were imposed on the markup over costs which agricultural processors can charge retailers. They ranged from 10-12 percent for meat and milk products to 17-20 percent for liquor and sugar. Any profits above these levels were to be confiscated (if discovered) and a penalty equal to the level of "excess profit" assessed. Retail price markups were also limited for some goods, including sugar (15 percent), vodka (10 percent), and milk (15 percent).³³ Private processing and private retail trade are not subject to maximum profit and marketing margins.

Indexes for retail prices for goods in State and cooperative trade reveal that from December 1991 through August 1992 overall consumer prices and food prices rose nearly twice as quickly as wages. Over this 8-month period food prices rose 776 percent, while wages increased 361 percent.³⁴ The prices of milk, meat, and macaroni products rose 1,250-1,500 percent each, while even fish products and bread products rose 1,000-1,100 percent. That meat and milk product prices rose most quickly reflects the reduction of federal subsidies on these products from 8.3 billion rubles in 1991 to a planned 1.7 billion in 1992.³⁵ Nevertheless, local governments were budgeted 26 billion coupons in 1992 to be spent on consumer subsidies for meat and milk goods. These were paid to processors and retailers whose prices are held down by regulations at the oblast and raion (local) levels of government.

Price liberalization has also been hampered by the introduction of orientive prices, which the State sets as guidelines for transactions with State enterprises. Orientive prices are based on formulas that estimate average costs and add allowed profit margins. Orientive prices are relevant because the State trading network still dominates. Data for the first half of 1992 indicate that about 85 percent of State and collective farm output sales are still made through State contracts.³⁶

Signs of Adjustment

In spite of incomplete price liberalization, market forces have been at work in adjusting relative agricultural prices. By April 1992, the ratios of domestic producer prices of milk and beef to wheat had declined from levels much higher than international price ratios, to levels only 5-15 percent above the international ratios. In comparison, relative prices for eggs, poultry, and pork were still 25-75 percent above world market price ratios. By September 1992, relative prices for all livestock products, compared to international values, had fallen even further. Relative prices for milk, eggs, and beef were below world market price ratios, while those for pork and poultry were in line with world prices. Without open foreign trade, relative prices can adjust only to domestic demand and supply conditions, and government intervention policies aimed largely at holding down retail food prices.

Terms of Trade

Through September 1992, farm output prices rose only about 70 percent as much as farm input prices. The reasons were the negative impact of existing trade regulations, monopoly power of State input suppliers, and the market power of State processors in buying farm output. In the first 9 months of 1992, agricultural input prices rose roughly 22-fold: diesel fuel, 120-fold; pesticides, 67-fold; fertilizer, 43-fold; and combines, an average of 26-fold.³⁷ These increases were greater than the average input price rise for two major reasons. First, financial subsidies for these inputs were reduced most heavily. Second, many of these inputs are imported from other republics. As the negotiated prices at which Ukraine and the other republics trade have moved toward international price levels, the import prices of these inputs have risen dramatically.

Over the same period, food prices rose 11-fold and agricultural farm output prices 15-fold. Prices increased 13-fold for livestock products and 27-fold for grains.³⁸ This is understandable because less grain has been marketed through State channels than any other product except potatoes, which have historically had a below-average share of State marketing.³⁹ These changes indicate that the practice of paying relatively high prices for livestock products compared to grains has been redressed to some degree. The relative prices of livestock products have fallen because of reduced consumer demand for meat and milk. The prices of grains and sugar have risen quickly as a result of reduced supply and, to a degree, their international tradeability.

Subsidy Reimposition

Producers. To forestall further breakdown in supply of agricultural raw materials to State processing and marketing enterprises (caused by erosion of many agricultural outputs' terms of trade compared with inputs), the government re-introduced subsidies to agricultural producers in June 1992. For livestock products, these price subsidies were expected to make up 48-67 percent of the total remuneration received, amounts 100-200 percent above the orientive prices paid by processors to agricultural producers.⁴⁰ For grains, sugarbeet, potatoes, and vegetables, subsidies were to amount to 11 percent or less of total remuneration. The subsidy rates set in June remained at the same nominal level through December 1992. For the June-December period, roughly 300 billion coupons were earmarked for these subsidies, calculated on the basis of 1991 procurement levels.

By September 1992, the orientive prices for grains, sugarbeet, cattle, pigs, and milk were all less than the average market prices for these commodities. However, through September 1992, subsidies for livestock products more than compensated for the erosion of their terms of trade. Given the high rate of inflation evident in October and November 1992, and the fact that orientive prices and subsidies were fixed in nominal terms, the preferential treatment shown livestock products was likely eroded by the end of 1992.

Consumers. In total, over 60 billion coupons were likely spent on consumer food subsidies in 1992. This represents 2 percent of expected Gross National Product (GNP), a reduction from previous consumer food subsidy levels. In

addition to the local government subsidies authorized on meat and milk products, the 1992 budget allocated over 20 billion coupons to be used for food subsidies at the local level on bread, macaroni, confectionery, and children's food products. As the federal government fixed the retail price of lower quality breads, bread producers received subsidies amounting

to the difference between their costs and the amount of revenue paid to them by retailers. Given the quicker-than-expected pace of inflation, bread subsidies were expected to amount to over 30 billion coupons for July-December 1992, two-thirds more than the subsidies allocated in the June 1992 budget.

As Food Demand Falls, Input Use Declines

A fall in real consumer income diminished demand for food in the republics in 1992. Farms used less inputs to produce less food. However, livestock output and crop yields did not fall nearly as much as input use per animal or hectare. [Yuri Markish, David J. Sedik, and Jason M. Lamb]

In the past 2 years total input use and total output in FSU agriculture have fallen markedly. As discussed in a previous section, falling real wages prompted a drop in real consumer demand. Because of falling demand, retail food and farm-gate prices have not kept up with rises in agricultural input prices, the profitability of many farms (particularly livestock producers) has fallen, and the demand for agricultural inputs has dropped. Agricultural input use is expected to continue to decline in 1993, with anticipated further declines in agricultural production.

At the same time, the State has tried to prevent input producers, farms, and processors from laying off workers by extending subsidies and soft credits to them. Subsidies and credits to input producers, State and collective farms, and processors have kept businesses and farms producing, even as profits continue to fall and finished-good inventories build up. For primary producers herd numbers and area sown have fallen very little compared to input use and output. For factories producing agricultural inputs, capacity remains, though output has fallen. This situation has resulted in dropping input use per animal and area sown and falling capacity utilization rates.

The agricultural adjustment of the past 2 years suggests two important conclusions concerning inputs. First, price deregulation has eliminated shortages for most inputs (the notable exceptions being fuel, lubricants, and some State imports). As in the case with foodstuffs, low fixed prices had created shortages by stimulating demand beyond available supply. With deregulation, prices are now free to move with changes in demand and supply, and can thereby act to balance the two. Rather than being constrained by shortages of inputs, farms are now constrained by their budgets in determining how many inputs to buy.

Second, livestock productivity and crop yields have not fallen nearly as much as input use per animal or hectare. This indicates that in the FSU either the marginal effect on production of inputs, such as fertilizers, plant protectorants, investments, and machinery, may be rather low for grain, or that inputs are being applied and utilized with greater efficiency than before, or (most likely) both. If input use per

animal and area sown continue to drop over a number of years, the accumulated effect on output might become serious.

State Agricultural Investment Cut

FSU governments are expected to reduce their agricultural investment expenditures in 1993/94, as each government is faced with severe budget constraints. For the first time in decades, investment in agriculture in the entire FSU declined 12 percent in 1991, compared with 1990, and 40-45 percent in 1992, compared to 1991, in **Russia, Ukraine, and Kazakhstan.**⁴¹

Although government agricultural investment expenditures in Russia have declined, the agro-industrial complex still attracts a sizable portion of State investment in the economy. Former Minister of Economics Nechaev stated that 27.5 percent of State investment in 1993 will be allotted to agriculture.⁴² Russian Minister of Agriculture Khlystun suggested that budget investments be allocated only for profitable ventures, in contrast to previous policies.

Budgetary investment allocations for land improvement in 1992 decreased significantly in the FSU as a whole and are expected to fall further in 1993. Commissions of newly irrigated and drained lands in 1992 declined 50 percent in **Russia** and 35 percent in **Ukraine**, compared with 1991 (table 9). Total inventories of irrigated and drained land in the FSU as a whole remained the same, or decreased slightly.

It is unclear how these declines in centralized investment will affect the capital stock of rural areas or production. During the 1970s and 1980s agricultural investment rose rapidly with comparatively little effect on output. Moreover, the measurable output of centralized investment, such as irrigated land, fertilizers, and plant protectorants, were administered and applied so carelessly as to cause severe land and water pollution in the FSU.

After many years of centralized investment there is a clear need for land improvement and the cleanup of an unprecedented accumulation of land, air, and water pollution in the

Table 9—Land availability, FSU republics

Republic and year	Arable land	Sown area	Irrigated year end	Land commis-sioned	Drained year end	Land commis-sioned
<i>Million hectares</i>						
Russian Fed.						
1985	133.9	119.1	5.8	0.3	7.0	0.3
1990	131.8	117.1	6.2	0.1	7.4	0.2
1991	131.1	115.5	6.1	0.1	7.6	0.1
1992 ¹	129.5	115.0	6.1	0.05	7.7	0.05
Ukraine						
1985	34.3	32.7	2.5	0.1	2.9	0.1
1990	33.6	32.4	2.6	0.05	3.2	0.1
1991	33.4	32.0	2.6	0.03	3.3	0.05
1992 ¹	33.0	32.0	2.6	0.02	3.3	0.03
Belarus						
1985	6.2	6.2	0.16	0.01	3.0	0.1
1990	6.1	6.1	0.15	--	3.2	0.1
1991	6.1	6.1	0.15	--	3.2	0.07
1992 ¹	6.0	6.0	0.15	--	3.2	0.04
Kazakhstan						
1985	35.6	35.8	2.2	0.1	--	--
1990	35.5	35.2	2.3	0.02	--	--
1991	35.4	34.9	2.3	0.02	--	--
1992 ¹	35.0	34.6	2.3	0.01	--	--

¹ Estimates.

-- = None or less than 5,000 hectares.

Sources: *Narodnoe khozyaistvo SSSR*, 1991;

Narodnoe khozyaistvo Rossiiskoy Federatsii, 1992;

Narodnoe gospodarstvo Ukrainy, 1992.

1993. In Russia in 1992, 41 kilograms per hectare were applied to crops, the lowest application rate since 1972 (figure 6). Organic fertilizer use has also declined. Only 300 million tons were applied in 1992, down from 800 million tons in the late 1980s.⁴⁷

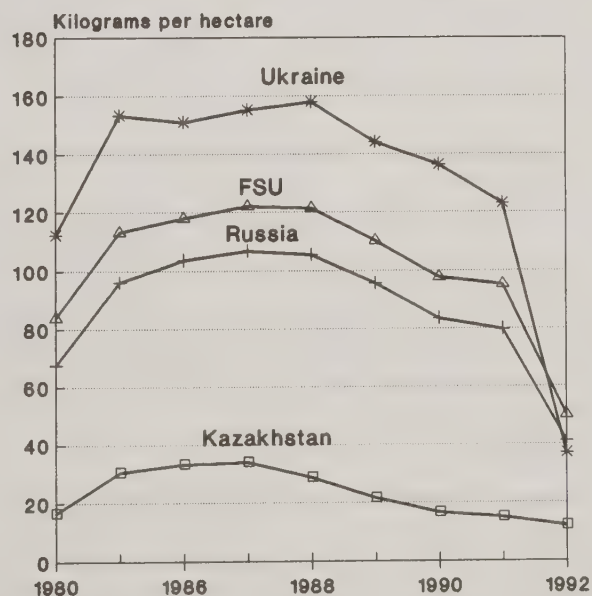
Less demand has caused the chemical and petrochemical industry in the FSU to reduce output (figure 7, tables 10-14). Fertilizer production is concentrated in the Slavic-speaking republics, with Russia producing 50 percent, Belarus 20 percent, and Ukraine 15 percent. Fertilizer production in Russia and Ukraine in 1992 dropped 21 and 20 percent from the previous year.

Yet, from the late 1960s to the late 1980s, fertilizer use in the FSU increased about four times, with only small effect on crops yields and output (table 10). This suggests that the negative effect of reduced fertilizer use on production during the early 1990s may not be very large.

An undervalued ruble made fertilizer export highly profitable in 1992 (table 15). For instance, in January 1992 carbamide sold for 5,000 rubles per ton on the Russian domestic market and \$120 per ton on world markets. The implicit exchange rate for carbamide purchased domestically for rubles and exported for hard currency was about 42 rubles per U.S. dollar, when the domestic "market" exchange rate at that time was 204 rubles per dollar.⁴⁸

In order to ensure adequate domestic supplies in 1992, the Russian Government attempted to halt fertilizer exports by imposing quotas of 4 million tons per year. To restrict exports in 1993, the Russian Government issued a decree giving sole right of export to the Russian agrochemical company,

Figure 6
Application of Mineral Fertilizers,
FSU, Russia, Ukraine, & Kazakhstan



1991 and 1992 are estimated.

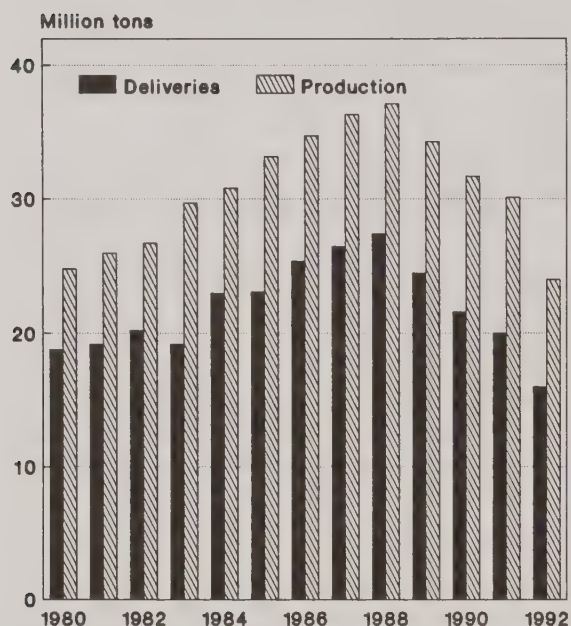
Source: Statkom SNG.

FSU. More than half of Russian agricultural lands are swampy or over-moisturized, highly acidic, or salinated. About 127 million out of 213 million hectares (total agricultural land) suffer from severe soil erosion, which increases 400,000-500,000 hectares annually.⁴³ Erosion is also a very serious problem in Ukraine where 70,000-80,000 hectares per year are deemed unusable. In Russia 62 million hectares of agricultural land are contaminated by industrial waste.⁴⁴ Obsolete FSU petrochemical enterprises dump 1.2 billion cubic meters of contaminated sewage into the water supply, and 2.5 million tons of hydrogen-sulfide into the atmosphere.⁴⁵ Usage of the toxic compound DDT (under different names) has contaminated 25 million acres of arable land in the FSU, while use of pesticides in Moldova was so high that many sugarbeet and carrot growing areas are contaminated by cadmium at 3 to 10 times the average rate.⁴⁶

Fertilizer Demand and Production Falls

Fertilizer prices rose about twice as quickly as the prices of farm output in 1992, leaving farmers in a tight financial squeeze. Farmers reacted by substantially reducing purchases of fertilizers. As a result, the Russian Ministry of Agriculture estimated that only a quarter of all crops will be fertilized in

Figure 7
FSU Fertilizer Production and Deliveries



1992 estimated.
Source: Statkom SNG.

Rosagrokhim, ordered a stop to all fertilizer shipments through the port of Odessa, and began an investigation of enterprises engaged in the unlawful export of agro-chemical supplies. These controls have been only partially effective because of the large incentives to export.

In 1992 FSU exports had a considerable effect on world markets for fertilizers. Prices of some agro-chemicals decreased in both regional and world markets. The world price for ammonium phosphate dropped from \$135 to \$100 per ton, while the price for diammonium phosphate declined to \$126.50 from \$160 per ton. Exports of carbamide to China decreased the chemical's price there from \$125 to \$100 per ton. As a result of price decreases, several Western countries imposed protectionist measures on products such as carbamide, potassium chloride, and ammonium phosphate.

Plant Protectorant Production and Use Also in Decline

The Russian Federation is the main producer and exporter of pesticides, herbicides, and other plant protectorants in the FSU. Russian production of these chemical compounds declined from 215,000 to 87,400 tons from 1985 to 1991. In 1992, Russian farmers used only 16 percent of the insecticides and fungicides used in 1988, 43 percent of seed treaters, and 29 percent of herbicides. Further declines are likely to continue for 1993/94.

Hard currency constraints played a large role in restricting production of plant protectorants in the FSU. Chemical plants attempted to augment their hard currency holdings by using earnings from fertilizer exports to help finance raw-material import needs for plant protectorant production. Nevertheless,

in 1992 Russian plant protectorant factories met only 38 percent of their import plans due to lack of hard currency.

The long-term effect of reduced production and use of plant protectorants on crop yields, as with fertilizer, is not yet clear. The apparent low marginal product of chemical inputs for crops in Soviet agriculture resulted from inefficient application and waste, as well as possible overuse. Higher prices for inputs may have prompted Russian farms to apply them more efficiently and waste less. Thus, the actual amount of fertilizer and plant protectorant properly applied at the right time may have fallen much less than the application rates indicate.

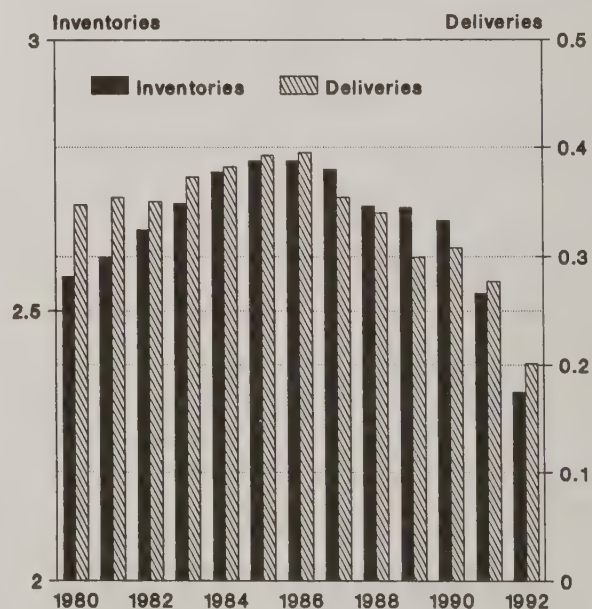
As Inventories Build, Machinery Production and Use Fall

By April 1992, over 150 billion rubles worth of farm machinery had accumulated in FSU government warehouses. This occurred because of a drop in demand as prices for agricultural machinery increased 19-fold, 25-fold for tractors and 35-fold for fuel and lubricants, while procurement prices for agricultural commodities increased only 10-fold.

In 1992, production and deliveries of machinery in the FSU also declined dramatically (figure 8, tables 16-21). Russia, Ukraine, and Kazakhstan produce 60, 26, and 6 percent of the agricultural machinery in the FSU, respectively. In the Russian Federation, production of tractors and combines in 1992 fell 24 and 33 percent, and potato combines and tractor movers decreased 36 and 35 percent.

The monopolistic organization of the agricultural machinery industry in the FSU is hardly conducive to stemming this production decline. Since September 1991, the joint-stock

Figure 8
FSU Tractor Inventories and Deliveries
(Million units)



1991 and 1992 are estimated.
Source: Statkom SNG.

Table 10--Availability and use of mineral fertilizers, FSU ¹

Year	Production				Deliveries				Application rate			
	Total ²	Nitrogen	Phosphate	Potash	Total ²	Nitrogen	Phosphate	Potash	Total ²	Nitrogen	Phosphate	Potash
	----- 1,000 tons -----								----- Kilograms per hectare -----			
1960	3,281	1,003	1,192	1,084	2,624	769	1,088	766	12.2	3.6	5.0	3.6
1961	3,593	na	na	na	na	na	na	na	na	na	na	na
1962	4,078	1,415	1,321	1,330	3,094	1,070	1,188	826	14.0	4.8	5.4	3.7
1963	4,647	1,759	1,475	1,400	3,594	1,360	1,321	901	16.2	6.1	6.0	4.0
1964	6,009	2,099	2,006	1,894	5,040	1,759	1,849	1,421	22.8	8.0	8.4	6.4
1965	7,389	2,712	2,300	2,368	6,273	2,282	2,091	1,891	28.4	10.3	9.5	8.6
1966	8,414	3,188	2,615	2,626	6,992	2,656	2,425	1,902	31.8	12.1	11.1	8.6
1967	9,399	3,753	2,774	2,868	7,746	3,089	2,511	2,136	35.1	14.0	11.4	9.7
1968	10,212	4,177	2,916	3,120	8,307	3,454	2,634	2,210	37.7	15.7	12.0	10.0
1969	10,730	4,509	3,036	3,183	8,885	3,798	2,766	2,319	40.3	17.2	12.6	10.5
1970	13,099	5,423	3,585	4,087	10,317	4,605	3,133	2,574	46.8	20.9	14.2	11.7
1971	14,670	6,055	3,802	4,807	11,352	5,182	3,376	2,788	51.4	23.5	15.3	12.6
1972	15,931	6,551	3,940	5,433	12,367	5,606	3,516	3,238	55.9	25.4	15.9	14.6
1973	17,429	7,241	4,261	5,918	13,470	6,224	3,632	3,605	60.9	28.1	16.5	16.3
1974	19,352	7,856	4,902	6,586	14,572	6,696	4,160	3,708	65.5	30.1	18.7	16.7
1975	21,998	8,535	5,511	7,944	17,251	7,339	4,728	5,176	77.5	33.0	21.2	23.3
1976	22,590	8,609	5,664	8,310	17,739	7,252	4,903	5,577	79.6	32.5	22.1	25.0
1977	23,493	9,114	6,024	8,347	18,034	7,522	5,104	5,400	80.8	33.7	22.9	24.2
1978	23,653	9,299	6,153	8,193	18,420	7,658	5,360	5,394	82.5	34.3	24.0	24.2
1979	22,137	9,151	6,344	6,635	17,365	7,467	5,480	4,411	77.7	33.4	24.6	19.7
1980	24,767	10,241	6,455	8,064	18,763	8,262	5,590	4,904	83.9	36.9	25.0	21.9
1981	25,998	10,705	6,836	8,449	19,176	8,383	5,879	4,905	85.6	37.4	26.3	21.9
1982	26,738	11,593	7,057	8,079	20,152	9,038	6,115	4,991	90.0	40.3	27.4	22.3
1983	29,733	13,014	7,417	9,294	22,977	10,302	6,465	6,201	102.5	45.9	28.9	27.7
1984	30,808	13,328	7,695	9,776	23,080	10,279	6,625	6,167	102.9	45.9	29.5	27.5
1985	33,194	14,223	8,596	10,367	25,395	10,950	7,615	6,822	113.2	48.8	34.0	30.4
1986	34,737	15,200	9,328	10,200	26,514	11,475	8,354	6,677	118.1	51.1	37.2	29.8
1987	36,300	15,700	9,691	10,900	27,412	11,787	8,564	7,052	122.1	52.5	38.2	31.4
1988	37,100	15,800	10,000	11,300	27,196	11,587	8,556	7,044	121.5	51.8	38.2	31.5
1989	34,300	14,400	9,700	10,200	24,482	9,918	8,175	6,381	110.3	44.7	36.8	28.8
1990	31,700	13,200	9,500	9,000	21,639	8,738	7,815	5,081	97.5	39.4	35.2	22.9
1991	30,100	12,100	9,200	8,800	20,000	7,700	7,500	4,800	94.6 ³	38.2 ³	34.2 ³	22.2 ³
1992 ³	20,500	na	na	na	10,000	na	na	na	50.0	na	na	na

na = not available.

¹ Nutrient weight basis. Nitrogen -- 20.5 percent N, phosphates -- 18.7 percent P₂O₅ and ground phosphate rock -- 19 percent P₂O₅, and potash -- 41.6 percent K₂O. ² Totals include trace elements. ³ Estimates.

Sources: *Narodnoe khozyaistvo*, various issues.

Table 11—Availability and use of mineral fertilizers, Russian Federation ¹

Year	Production				Deliveries				Application rate			
	Total ²	Nitrogen	Phosphate	Potash	Total ²	Nitrogen	Phosphate	Potash	Total ²	Nitrogen	Phosphate	Potash
	----- 1,000 tons -----								----- Kilograms per hectare -----			
1980	11,772	5,394	2,859	3,518	8,914	3,635	2,933	2,343	67.5	27.5	22.2	17.8
1981	12,359	5,583	3,037	3,737	9,354	3,792	3,186	2,373	70.8	28.7	24.1	18.0
1982	12,690	6,070	3,171	3,447	9,786	4,019	3,309	2,454	74.1	30.4	25.1	18.6
1983	14,788	7,061	3,420	4,305	11,280	4,715	3,447	3,115	85.4	35.7	26.1	23.6
1984	15,884	7,454	3,829	4,600	11,616	4,833	3,662	3,118	87.9	36.6	27.7	23.6
1985	17,304	8,013	4,437	4,852	12,677	5,304	4,018	3,352	96.0	40.2	30.4	25.4
1986	17,712	8,491	4,769	4,449	13,648	5,687	4,593	3,364	103.5	43.2	34.8	25.5
1987	18,454	8,554	4,937	4,959	14,086	5,930	4,678	3,473	106.7	44.9	35.5	26.3
1988	19,071	8,642	5,069	5,358	13,851	5,781	4,705	3,361	105.3	43.9	35.8	25.6
1989	17,506	7,812	4,973	4,719	12,467	4,850	4,647	2,967	95.6	37.2	35.6	22.8
1990	15,979	7,186	4,943	3,848	10,828	4,217	4,335	2,275	83.4	32.5	33.4	17.5
1991	15,042	6,880	4,275	4,086	10,102	3,967	3,761	2,374	79.7	31.6	29.1	19.0
1992 ³	11,000	5,200	3,000	2,800	5,500	2,500	1,700	1,300	41.0 ³	16.7 ³	13.8 ³	10.5 ³

¹ Nutrient weight basis. Nitrogen—20.5 percent N, phosphates—18.7 percent P₂O₅ and ground phosphate rock—19 percent P₂O₅, and potash—41.6 percent K₂O. ² Totals include trace elements. ³ Estimates.

Sources: *Narodnoe khozyaistvo Rossiiskoy Federatsii*, 1992; *Ekonomika i zhizn*, No. 4 January 1993; *Selskaya zhizn*, May 1992.

Table 12—Availability and use of mineral fertilizers, Ukraine ¹

Year	Production				Deliveries				Application rate			
	Total ²	Nitrogen	Phosphate	Potash	Total ²	Nitrogen	Phosphate	Potash	Total ²	Nitrogen	Phosphate	Potash
	----- 1,000 tons -----								----- Kilograms per hectare -----			
1980	4,086	2,403	1,344	337	3,713	1,775	932	1005	112.3	53.7	28.2	30.4
1981	4,381	2,565	1,467	317	3700	1,723	985	990	112.0	52.2	29.8	30.0
1982	4,703	2,892	1,536	272	4,062	2,014	1,015	1030	123.0	61.0	40.8	31.2
1983	4,994	3,109	1,590	292	4,708	2,241	1,115	1350	142.7	67.9	33.8	40.9
1984	4,790	3,044	1,460	284	4,601	2,235	1,044	1321	139.5	67.8	31.6	40.1
1985	5,074	3,220	1,563	290	5,057	2,184	1,359	1511	153.4	66.3	41.3	45.8
1986	5,500	3,500	1,700	300	4,971	2,283	1,293	1393	151.0	69.4	39.2	42.3
1987	5,700	3,700	1,700	300	5,105	2,259	1,344	1500	155.2	68.7	40.8	45.6
1988	5,600	3,600	1,700	200	5,177	2,242	1,417	1516	157.9	68.3	43.2	46.2
1989	5,100	3,300	1,700	200	4,671	1,960	1,341	1367	144.1	60.5	41.3	42.2
1990	4,800	3,000	1,600	100	4,263	1,807	1,452	1002	136.4	57.5	45.7	33.2
1991	4,200	2,800	1,300	100	3,843	1,662	1,088	1,091	123.0 ³	53.0 ³	34.0 ³	36.0 ³
1992 ³	3,360	2,500	780	80	1,540	665	435	440	37.0	16.2	10.0	10.8

¹ Nutrient weight basis. Nitrogen—20.5 percent N, phosphates—18.7 percent P₂O₅ and ground phosphate rock—19 percent P₂O₅, and potash—41.6 percent K₂O. ² Totals include trace elements. ³ Estimates.

Sources: *Narodnoe gospodarstvo Ukrainy*, various issues.

Table 13—Availability and use of mineral fertilizers, Belarus ¹

Year	Production				Deliveries				Application rate			
	Total ²	Nitrogen	Phosphate	Potash	Total ²	Nitrogen	Phosphate	Potash	Total ²	Nitrogen	Phosphate	Potash
	----- 1,000 tons -----								----- Kilograms per hectare -----			
1980	4,931	489	254	4,187	1,470	527	274	668	252.5	90.5	47.1	114.8
1981	5,087	488	229	4,369	1,576	549	298	728	270.8	94.3	51.2	125.1
1982	na	na	na	na	na	na	na	na	na	na	na	na
1983	na	na	na	na	na	na	na	na	na	na	na	na
1984	na	na	na	na	na	na	na	na	na	na	na	na
1985	5,972	602	225	5,144	1,867	711	365	790	321.1	122.2	62.8	135.9
1986	6,339	677	225	5,436	1,960	732	402	825	339.5	126.8	69.6	142.9
1987	3,584	769	225	5,588	2,007	744	416	846	348.0	129.0	72.1	146.7
1988	6,715	844	231	5,639	2,180	780	446	952	378.5	135.5	77.5	165.3
1989	6,268	777	232	5,257	2,189	729	493	965	383.8	127.8	86.4	169.2
1990	5,996	745	256	4,994	2,152	682	483	986	378.6	120.0	85.0	173.5
1991	5,200	648 ³	220 ³	4332 ³	1,940 ³	614 ³	410 ³	916 ³	341.0 ³	108 ³	72.0 ³	161.0 ³
1992 ³	3,500	na	na	na	1,500	na	na	na	na	na	na	na

na = not available.

¹ Nutrient weight basis. Nitrogen—20.5 percent N, phosphates—18.7 percent P₂O₅ and ground phosphate rock—19 percent P₂O₅, and potash—41.6 percent K₂O. ² Totals include trace elements. ³ Estimates.

Sources: *Narodnoe khozyaistvo Belorusskoy SSR*, various issues.

Table 14—Availability and use of mineral fertilizers, Kazakhstan ¹

Year	Production				Deliveries				Application rate			
	Total ²	Nitrogen	Phosphate	Potash	Total ²	Nitrogen	Phosphate	Potash	Total ²	Nitrogen	Phosphate	Potash
	----- 1,000 tons -----								----- Kilograms per hectare -----			
1980	1,262.0	386.0	866.7	8.3	582	323	236	23	16.5	9.1	6.7	0.7
1981	1,343.0	na	na	na	622	302	297	23	17.6	8.5	8.4	0.7
1982	1,321.0	na	na	na	630	283	322	25	17.8	8.0	9.1	0.7
1983	1,342.0	na	na	na	893	389	468	36	25.1	11.0	13.2	1.0
1984	1,382.0	na	na	na	874	361	476	37	24.6	10.2	13.4	1.0
1985	1,429.7	403.5	1,016.9	8.0	1,091	439	607	45	30.6	12.3	17.0	1.3
1986	1,520.3	419.8	1,091.3	8.0	1,189	460	685	44	33.3	12.9	19.2	1.2
1987	1,602.9	445.0	1,147.6	9.1	1,210	456	710	44	33.9	12.8	19.9	1.2
1988	1,737.1	446.3	1,278.3	11.3	1,027	379	617	31	28.8	10.6	17.3	0.9
1989	1,704.9	450.4	1,240.9	12.3	770	311	450	9	21.6	8.7	12.6	0.3
1990	1,655.9	431.0	1,211.2	12.6	589	237	342	10	16.6	6.7	9.7	0.3
1991	1,516.1	410.2	1,093.9	11.9	531	235	285	11	14.9 ³	6.6 ³	8 ³	0.3 ³
1992 ³	1,360.0	370.0	980.0	10.0	450	200	242	8	11.9	5.6	6	0.3

¹ Nutrient weight basis. Nitrogen—20.5 percent N, phosphates—18.7 percent P₂O₅ and ground phosphate rock—19 percent P₂O₅, and potash—41.6 percent K₂O. ² Totals include trace elements. ³ Estimates.

Sources: *Narodnoe khozyaistvo Kazakhstana*, various issues.

**Table 15—Import and export of mineral fertilizers (including interrepublic trade),
FSU republics, calendar year 1991 ¹**

Imported by:	Exported from:					Total imports from FSU ²
	Russian Fed.	Ukraine	Belarus	Kazakhstan	Tajikistan	
1,000 tons						
Russian Fed.	x	142	648	568	--	1,479
Ukraine	610	x	1,140	8	--	1,758
Belarus	387	106	x	17	--	510
Moldova	12	149	56	--	--	217
Kazakhstan	55	--	--	x	--	191
Uzbekistan	173	--	--	169	34	376
Kyrgyztan	19	--	--	22	x	184
Tajikistan	32	--	--	20	--	221
Turkmenistan	87	4	--	35	15	189
Armenia	25	3	--	--	--	28
Azerbaijan	143	0	--	--	--	143
Georgia	30	1	3	--	--	34
Lithuania	41	2	295	--	--	338
Latvia	71	9	166	--	--	246
Estonia	41	6	59	--	--	106
Exports to:						
FSU	1,726	422	2,367	839	49	
Non-FSU	3,368	1,015	1,453	136	6	
Total	5,094	1,437	3,820	975	55	

-- = negligible or none.

¹ Nutrient weight basis. ² Includes imports from all 15 former USSR republics.

Sources: *Strany-chleny SNG statisticheskii ezhegodnik*, 1992.

Table 16—Inventories, deliveries, and scrapping rates for farm machinery, FSU ¹

Year	Tractors			Grain combines			Trucks ²		
	Inventories	Deliveries	Scrapping rate	Inventories	Deliveries	Scrapping rate	Inventories	Deliveries	Scrapping rate
	-----1,000-----		Percent	-----1,000-----		Percent	-----1,000-----		Percent
1965	1,613	240	na	520	79	na	945	94	na
1966	1,660	276	14.2	531	86	14.5	1,017	131	6.2
1967	1,739	287	12.6	553	96	13.9	1,054	134	9.6
1968	1,821	290	12.0	581	98	12.6	1,097	141	9.3
1969	1,908	304	11.9	605	92	11.7	1,153	155	9.0
1970	1,977	309	12.6	623	97	13.1	1,136	157	15.1
1971	2,046	313	12.4	639	99	13.3	1,168	169	12.1
1972	2,112	313	12.1	656	93	11.9	1,232	188	10.6
1973	2,188	323	11.7	658	82	12.1	1,276	225	14.7
1974	2,267	348	12.3	673	83	10.4	1,336	251	14.9
1975	2,334	370	13.4	680	92	12.6	1,396	269	15.7
1976	2,400	369	13.0	685	98	13.7	1,442	269	16.0
1977	2,458	365	12.8	693	101	13.6	1,501	268	14.5
1978	2,515	371	12.8	700	111	15.0	1,528	270	16.2
1979	2,540	355	13.1	706	112	15.1	1,568	267	14.9
1980	2,562	347	12.8	722	117	14.3	1,596	268	15.3
1981	2,598	354	12.4	741	105	11.9	1,653	268	13.2
1982	2,649	350	11.5	771	110	10.8	1,699	268	13.4
1983	2,697	373	12.3	794	116	12.1	1,725	285	15.2
1984	2,755	382	12.0	822	116	11.1	1,750	280	14.8
1985	2,775	393	13.5	828	111	12.8	1,425	323	37.0
1986	2,776	395	14.2	827	111	13.5	1,348	317	27.6
1987	2,759	354	13.4	774	93	17.7	1,350	330	24.3
1988	2,692	340	14.7	751	66	11.4	1,453	354	18.6
1989	2,689	299	11.2	689	66	17.0	1,349	329	29.8
1990	2,666	308	12.3	683	66	10.4	1,392	334	21.6
1991 ³	2,532	277	15.4	650	63	14.0	1,364	300	23.5
1992 ³	2,350	200	15.1	na	na	na	na	na	na

na = not available.

¹ Inventories are for the end of the year, and scrapping rates are equal to deliveries minus the change in inventories, divided by inventories at the end of the preceding year.

² Total number of trucks in the former USSR is not representative of republic data because different calculation approaches were used in each republic.

³ Estimates.

Sources: *Narodnoe khozyaistvo*, various issues.

Table 17 – – Inventories, deliveries, and scrapping rates for farm machinery, Russian Federation ¹

Year	Tractors			Grain combines			Trucks		
	Inventories	Deliveries	Scrapping rate	Inventories	Deliveries	Scrapping rate	Inventories	Deliveries	Scrapping rate
	-----1,000-----		Percent	-----1,000-----		Percent	-----1,000-----		Percent
1980	1,324	177	na	448	75	na	na	268	na
1981	1,342	178	12.1	462	65	11.4	na	268	na
1982	1,372	168	10.3	479	66	10.7	na	268	na
1983	1,395	180	11.4	492	70	11.8	na	285	na
1984	1,417	182	11.5	507	69	10.9	na	280	na
1985	1,426	187	12.6	511	70	13.2	696	323	na
1986	1,426	185	13.0	510	71	14.0	653	153	28.2
1987	1,386	179	15.3	476	59	18.3	653	137	21.0
1988	1,389	na	na	450	24	10.5	711	na	na
1989	na	na	na	na	39	na	na	na	na
1990	1,366	181	na	408	42	na	705	na	na
1991	1,369 ²	190 ²	13.7 ²	367 ²	35	18.6 ²	698 ²	118 ²	17.7 ²
1992 ²	1,372	144	10.3	330	25	16.9	690	101	15.6

na = not available

¹ Inventories are for the end of the year, and scrapping rates are equal to deliveries minus the change in inventories, divided by inventories at the end of the preceding year.

² Estimates.

Sources: *Narodnoe khozyaistvo Rossiiskoy Federatsii*, various issues.

Table 18 – – Inventories, deliveries, and scrapping rates for farm machinery, Ukraine ¹

Year	Tractors			Grain combines			Trucks		
	Inventories	Deliveries	Scrapping rate	Inventories	Deliveries	Scrapping rate	Inventories	Deliveries	Scrapping rate
	-----1,000-----		Percent	-----1,000-----		Percent	-----1,000-----		Percent
1980	409	49.5	na	90	12.8	na	237	na	na
1981	413	51.4	11.5	93	12.1	10.2	na	na	na
1982	421	47.5	9.7	98	12.3	7.5	na	na	na
1983	428	52.2	10.7	101	14.1	11.0	na	na	na
1984	439	51.7	9.6	108	14.7	8.4	na	na	na
1985	435	53.9	13.2	110	14.5	11.5	266	na	na
1986	459	52.5	6.5	110	13.8	12.3	271	na	na
1987	452	52.1	12.7	110	12.7	11.5	275	na	na
1988	453	na	na	114	16.0	10.9	278	na	na
1989	442	na	na	108	10.6	14.6	269	na	na
1990	453	na	na	107	9.0	8.9	296	na	na
1991	455	na	na	103	6.1	9.4	307	na	na
1992 ²	460	na	na	93	4.3	13.9	313	na	na

na = not available.

¹ Inventories are for the end of the year, and scrapping rates are equal to deliveries minus the change in inventories, divided by inventories at the end of the preceding year.

² Estimates.

Source: *Narodne gospodarstvo Ukrainy*, various issues.

Table 19—Inventories, deliveries, and scrapping rates for farm machinery, Belarus ¹

Year	Tractors			Grain combines			Trucks		
	Inventories	Deliveries	Scrapping rate	Inventories	Deliveries	Scrapping rate	Inventories	Deliveries	Scrapping rate
	-----1,000-----		Percent	-----1,000-----		Percent	-----1,000-----		Percent
1980	117.2	15.1	na	27.4	4.1	na	56	7.7	na
1981	119.2	14.8	10.9	28.3	3.9	11.0	75	7.8	na
1982	122.4	na	na	29.8	na	na	na	na	na
1983	125.4	na	na	31.2	na	na	na	na	na
1984	128.9	na	na	33.2	na	na	na	na	na
1985	131.2	15.6	10.3	34.9	5.1	10.3	68	9.1	na
1986	130.5	15.0	12.0	35.8	6.2	15.1	66	9.0	16.2
1987	122.8	15.5	17.8	35.0	6.1	19.4	66	9.5	14.4
1988	127.3	na	na	34.3	2.5	9.1	72	na	na
1989	na	na	na	na	2.3	na	na	na	na
1990	127.0	na	na	31.0	2.7	na	74	na	na
1991 ²	114.0	na	na	28.0	2.2	na	67	na	na
1992 ²	102.0	na	na	25.0	na	na	60	na	na

na = not available.

¹ Inventories are for the end of the year, and scrapping rates are equal to deliveries minus the change in inventories, divided by inventories at the end of the preceding year.

² Estimates.

Sources: *Narodnoe khozyaistvo Belorusskoy SSR*, various issues.

Table 20—Inventories, deliveries, and scrapping rates for farm machinery, Kazakhstan ¹

Year	Tractors			Grain combines			Trucks		
	Inventories	Deliveries	Scrapping rate	Inventories	Deliveries	Scrapping rate	Inventories	Deliveries	Scrapping rate
	-----1,000-----		Percent	-----1,000-----		Percent	-----1,000-----		Percent
1980	237.4	26.0	na	109.7	16.4	na	135.9	20.1	na
1981	238.1	26.5	10.9	109.2	14.9	14.0	141.5	20.1	10.7
1982	240.0	24.3	9.4	112.3	16.0	11.8	142.0	19.4	13.4
1983	243.2	27.2	10.0	116.3	15.8	10.5	144.8	20.7	12.6
1984	245.9	27.6	10.2	119.3	15.2	10.5	145.3	24.5	16.6
1985	248.7	28.5	10.5	118.7	12.3	10.8	156.6	na	na
1986	241.2	28.3	14.4	114.6	13.3	14.7	161.3	na	na
1987	233.7	na	na	102.5	10.0	19.3	138.0	na	na
1988	222.3	0.3	5.0	101.9	18.1	18.3	130.8	11.6	13.6
1989	na	na	na	na	9.2	na	na	na	na
1990	220.1	na	na	89.0	6.9	na	134.5	na	na
1991	187.0	na	na	86.6	6.0	9.0	133.0	na	na
1992 ²	159.0	na	na	69.0	3.0	24.0	120.0	na	na

na = not available.

¹ Inventories are for the end of the year, and scrapping rates are equal to deliveries minus the change in inventories, divided by inventories at the end of the preceding year.

² Estimates.

Sources: *Narodnoe khozyaistvo Kazakhstan*, various issues.

Table 21 -- Import and export of tractors (including interrepublic trade), FSU republics, calendar year 1991

Imported by:	Exported from:						Total imports from FSU ¹
	Russian Fed.	Ukraine	Belarus	Moldova	Kazakhstan	Uzbekistan	
<i>Units</i>							
Russia Fed.	x	34,991	42,474	--	14,903	763	93,131
Ukraine	17,145	x	11,909	--	2,326	34	31,414
Belarus	7,385	3,643	x	--	--	--	11,028
Moldova	2,619	1,030	869	x	--	--	4,518
Kazakhstan	5,537	2,135	6,718	--	x	624	15,014
Uzbekistan	2,757	30	4,518	--	187	x	7,492
Kyrgyzstan	583	212	501	--	245	340	1,881
Tajikistan	337	32	120	--	61	1,292	1,842
Turkmenistan	1,577	164	92	--	161	1,443	3,437
Armenia	294	121	219	--	--	37	671
Azerbaijan	3,301	249	531	--	--	843	4,924
Georgia	535	697	677	--	--	--	1,909
Lithuania	2,084	825	808	--	--	--	3,717
Latvia	4,198	674	751	--	--	188	5,811
Estonia	1,281	333	952	--	--	--	2,566
Exports to:							
FSU	49,633	45,136	71,139	--	17,883	5,564	
Non-FSU	5,622	8460	15,981	--	208	55	
Total	55,255	53,596	87,120	--	18,091	5,619	

-- = negligible or none.

¹ Includes imports from all 15 former USSR republics.

Sources: *Strany-chleny SNG statisticheskii ezhegodnik*, 1992.

company, "Avtoselkhoz mash-holding" (ASM-holding) has controlled production of trucks and farm machinery in the FSU. Republic governments are shareholders in this company, which consists of about 1,500 interdependent enterprises producing farm machinery in the FSU. Large State enterprises of this sort have had a dismal record of satisfying consumer demand in the FSU, and there is little reason to believe such an organization can change. In early 1992 Avtoselmash-holding was operating at about 60-70 percent of capacity.

Production prospects for farm equipment in 1993 hold little promise of improvement, despite measures taken by the government to support agriculture. Compared to Western standards, the agricultural machinery available for purchase has been obsolete for 20 years. Rather than rely on domestic suppliers, Russian farms are seeking to purchase Western machinery. To replace worn out equipment, the Russian company, Agrarian Technology, has received licenses worth \$500 million to import technology and equipment from West European sources.⁴⁹

Disruption of Former USSR Trade Continues

Foreign trade in the FSU republics in 1992 continued to decrease, and the outlook for 1993 is further decline. The main reasons for the drop in trade are hard currency constraints, incomplete economic reforms, and protectionist trade policies. In order to earn hard currency, the republics will try to expand their trade beyond the borders of the former USSR, at times diverting commodities away from interrepublic exchange.

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In 1992, the external and internal trade of the republics of the FSU continued to contract as a result of incomplete economic reform. This contraction will continue in 1993. In some of the republics, civil unrest has contributed to the deterioration of trade flows. While Russia may maintain a positive trade balance, the other republics, especially those without large energy or other natural resources, will face trade deficits. These deficits vis-a-vis Russia will probably increase, as Russia raises the prices at which it sells them energy. Natural resources will continue to dominate FSU exports beyond the borders of the former Union.

Russia continued to have an aggregate external trade surplus in 1992, although only half of the 1991 level. Preliminary data indicate that Kazakhstan and Azerbaijan ran small external trade surpluses. The FSU is estimated to have had a positive, though small, external trade balance in 1992, as total imports fell by a greater percentage than exports.

Patterns of trade beyond the FSU's borders continue to change. Trade with the developed nations in Asia and the West has increased, while traditional ties to East Bloc and developing countries have declined. The energy- and raw-material-exporting FSU republics are shifting trade toward the developed West to earn hard currency. Also, much of the FSU's imports from developed nations are being financed by Western government export credit guarantees. Other Western goods, including some food, are being provided as humanitarian assistance. The breakdown in trade between the FSU countries and East European nations that followed the collapse of the Council for Mutual Economic Assistance (CMEA) could be partly reversed by the restoration of some of the traditional trade flows. As the FSU progresses to market-based and free-trading economies, trade will increasingly be determined on the basis of comparative advantage, and should rise.

In the short run, the lack of convertible currencies hurts trade with non-FSU nations. Without convertible currencies, the FSU republics must use hard-earned hard currency to help finance trade. Inconvertible currencies also discourage foreign investment, because profit earned in rubles (or any republic's currency) cannot be easily repatriated. Because of the low quality of their industrial output, the republics' ability to earn hard currency in the short run will continue to depend on possession of exportable natural resources. Rising costs

and falling extraction rates are reducing this source of hard currency earnings.

The hard currency constraint facing the FSU republics is also affecting debt-servicing. During 1992, all the successor States to the Soviet Union, except Ukraine, relinquished their share of USSR assets and debt to **Russia**. Total USSR debt is estimated at \$70-80 billion, of which **Ukraine's** share is around 16 percent. During 1992, Russia paid around \$1-2 billion of a total \$15-20 billion obligation. At the end of 1992, Russia defaulted on several of its payments and started negotiations with the Paris Club of government creditors to reschedule the debt. One issue which held up Russia's Paris Club debt rescheduling was Ukraine's decision to accept responsibility for its share of the Soviet debt. During early 1993 Russia and Ukraine were able to negotiate an agreement on dividing Soviet assets and debt, and in April 1993, the Paris Club rescheduled \$15 billion of Russia's 1993 obligations.

Republics which joined the Commonwealth of Independent States (CIS) have yet to establish any type of common trade policies. Individual countries continue to pursue their own trade policies and practices. In all the republics, State control over trade remains strong, and measures continue to prevent exports of strategic goods such as food and raw materials. Bilateral arrangements, common in trade among the former CMEA nations, remain the basis of most interrepublic trade. Some direct trade between enterprises in different republics, usually on a barter basis, is also taking place.

FSU interrepublic trade is also hampered by the lack of a stable currency, as the value of the ruble continues to drop due to macroeconomic instability and inflation. In addition, several republics have begun to issue their own currencies, further complicating trade in the so-called "ruble zone." Yet, no functioning payment-clearing mechanism for interrepublic trade exists. Steps toward such an arrangement were taken in 1992 when 10 republics signed an interstate bank agreement. However, there are no indications that the agreement has been implemented.

FSU External Trade Contracts . . .

For FSU republics other than Russia, comprehensive statistics for external trade, defined as trade beyond the FSU's borders, are not yet available. However, CIS Statistical Committee

Table 22—External trade turnover, FSU republics ¹

	1990			1991			1992 ²		
	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance
\$ billion									
Russian Federation ³	54.7	47.4	7.3	50.9	44.0	6.9	38.1	35.0	3.1
Ukraine	9.4	11.4	-2.0	4.8	6.6	-1.8	4.0	6.0	-2.0
Belarus	3.0	3.9	-0.9	1.7	2.0	-0.3	1.1	0.7	0.4
Moldova	0.3	1.3	-1.0	0.2	0.6	-0.4	0.1	0.1	0.0
Kazakhstan	1.3	2.8	-1.5	0.8	1.7	-0.9	1.5	0.5	1.0
Uzbekistan	1.0	2.4	-1.4	0.7	1.3	-0.6	0.9	0.9	0.0
Kyrgyzstan	0.1	1.0	-0.9	0.1	0.6	-0.5	0.08	0.10	-0.02
Tajikistan	0.5	0.9	-0.4	0.3	0.4	-0.1	0.1	0.1	0.0
Turkmenistan	0.2	0.7	-0.5	0.1	0.4	-0.3	0.1	0.1	0.0
Armenia	0.1	1.0	-0.9	0.1	0.8	-0.7	0.03	0.30	-0.27
Azerbaijan	0.5	1.5	-1.0	0.3	0.8	-0.5	0.8	0.3	0.5
Georgia	0.3	2.8	-2.5	0.2	1.5	-1.3	na	na	na
Lithuania	0.5	1.5	-1.0	0.3	0.8	-0.5	na	na	na
Latvia	0.2	1.6	-1.4	0.1	0.9	-0.8	na	na	na
Estonia	0.1	0.8	-0.7	0.1	0.4	-0.3	na	na	na
Total	72.2	81.0	-8.8	60.6	62.8	-2.2	46.8	44.1	2.7

na = not available.

¹ Converted to dollars from valuta rubles at the commercial rate.

² Estimates, total is for CIS.

³ Statkom SNG and MFER give different data for 1991 and 1992 trade (see table 23).

Source: Statkom SNG and Goskomstat Rossii.

data for 1990-1992 trade indicate that, in the aggregate, 1992 external-FSU trade continued to decline in value (table 22). The FSU also ran a small aggregate trade surplus in 1991, mainly because of Russia's positive trade balance and a larger drop in imports than exports.

Given the decentralization of statistical collection with the breakup of the USSR, different organizations have provided varying and sometimes conflicting Russian trade data (table 23). For example, in its 1992 economic report, Goskomstat Rossii (GR) provided 1992 external trade data.⁵⁰ According to GR, Russian trade with non-FSU partners in 1992 totaled \$73.1 billion, down 21 percent from the previous year. There was a positive trade balance of \$3.1 billion, compared to \$6.4 billion in 1991. Total exports came to \$38.1 billion, 25 percent below 1991, while imports totaled \$35 billion, down 21 percent. The Ministry for Foreign Economic Relations (MFER) released preliminary trade statistics in February 1993, which indicate total trade activity in 1992 of \$87 billion, with exports of \$45 billion and imports of \$42 billion, a decline of 12 and 6 percent, respectively.⁵¹ The trade balance of \$3 billion is very close to GR's figure. While the CIS Statistical Committee has not released 1992 Russian trade

figures, differences exist between 1991 data from this and the other sources.

There are several possible reasons for the differences between the GR and MFER statistics. First, the MFER figures are preliminary, and this is the first time the Ministry has released such data. Second, the methodology used by the two organizations might differ. For example, the MFER bases its trade estimates on customs data. Third, the two might have used different exchange rates in converting rubles to a foreign currency. Fourth, the MFER data might have captured some trade outside State channels. For example, in the case of oil exports, GR reports data from the former State monopoly trader, Soyuznefteeksport. This means GR statistics would miss oil exported outside this channel. However, the MFER export data does exclude illegal exports, re-exports through the FSU republics, or goods exported by individuals. The MFER estimates the value of these exports at \$2-4 billion. Lastly, an article in the business weekly *Kommersant* notes that GR is under the control of the Russian Supreme Soviet, which has its own economic agenda.⁵²

The following data are from the GR quarterly reports published in the economic newspaper, *Ekonomika i zhizn'*. The

Table 23—External trade statistics, Russian Federation

	1991			1992				
	Exports	Imports	Balance	Exports	as a % of 1991	Imports	as a % of 1991	Balance
<i>\$ billion</i>								
Statkom SNG	36.8	25.6	11.2	na	na	na	na	na
Goskomstat Rossii	50.9	44.0	6.9	38.1	75%	35.0	80%	3.1
Ministry for Foreign Economic Relations	50.9	45.0	5.9	45.0	88%	42.0	93%	3.0
na = not available.								

12-month GR data indicate an improvement in Russia's trade situation compared to the figures for the 6- and 9-month periods, which showed exports down 35 percent from the corresponding periods in 1991 (table 24). Much of the fourth-quarter recovery was due to an increase in oil exports. Total 1992 oil exports increased 17 percent to 66 million metric tons. While crude oil exports were down an average of 15 percent during most of 1992, sales greatly increased during the fourth quarter.

Russia's 1992 exports fell 25 percent, a drop which could have been greater except for the fact that over 50 percent of its exports (in value terms) consist of energy, and sales of these products actually increased in 1992. Other major Russian exports include ferrous metals, coal, timber, mineral fertilizers, and machinery and equipment, sales of which were generally down in 1992. A 1993 GR report indicates that 1992 machinery and equipment exports, which usually make up about 10 percent of total exports, were down 30 percent.⁵³

Russian imports, totaling \$35 million in 1992 according to GR, consist mainly of agricultural goods, machinery and equipment, and industrial consumer goods. All 1992 agricultural imports, with the notable exception of grain, were considerably less than in the previous year. Machinery and equipment imports, which usually comprise 30-40 percent of total Russian imports, were down 9 percent in 1992.

Russian trade with Eastern Europe and other former East Bloc countries continued to fall in 1992, but trade with developed countries rose. In 1992 over 60 percent of total trade was with the developed West. Trade increased significantly with Italy (27 percent), France (22 percent), and Great Britain (80 percent), but decreased 7 percent with Germany. However, Germany remains Russia's main trading partner in Western Europe. Trade with the United States, valued by GR at \$3.7 billion, increased over 50 percent from 1991. There were also noticeable increases in trade with China, South Korea, Singapore, and Thailand. The share of developing and former CMEA nations in Russia's total trade fell to 11 and 19 percent,

Table 24—Quarterly external trade, Russian Federation, 1992

	6 months	% change from 1991	9 months	% change from 1991	12 months	% change from 1991
Exports	15.4	-35%	24.2	-35%	38.1	-25%
Imports	14.9	-24%	26.4	-17%	35.0	-21%
Balance	0.5	na	-2.2	na	3.1	na

na = not available.

Source: Goskomstat Rossii.

respectively. In 1990, the year the CMEA was dismantled, 44 percent of Russia's trade was with member countries.

FSU external trade in the near term can be expected to continue to fall, as the means to earn hard currency to pay for imports becomes increasingly more difficult. First-quarter 1993 Russian Federation trade data support this outlook, as Russia's trade turnover during January-March 1993 decreased 36 percent from the first quarter of 1992. While exports fell only 11 percent, imports were 2.4-times lower than in 1992. Decreased agricultural imports, especially of grain, made up much of the decline.

... As External Debt Continues To Grow

Despite a positive trade balance in 1992 of \$3.1 billion, Russia must deal with the large external debt inherited from the USSR. All the FSU republics, except Ukraine, have agreed to cede to Russia all the foreign assets and debt of the former Union. On November 23, 1992, Ukraine and Russia signed a provisional agreement on the division of Soviet assets and debt. However, at the beginning of 1993, Ukraine backed out and the two republics worked out a new arrangement in which

Ukraine would assume responsibility for its share of the FSU debt and assets.

Western sources estimate total FSU debt at \$70-80 billion, with payments of \$15-20 billion due in 1992. As of October 1992, Russia had paid \$1.35 billion, and was expected to pay a total of \$2 billion for the year. During 1992, Russia defaulted on debt payments to several countries, including the United States, South Korea, Canada, France, and Germany, its single largest government creditor. Russia's debt-servicing problems are largely due to declining exports and hard currency earnings. Also, high inflation and the resulting fall in the ruble's exchange rate are motivating large-scale capital flight. Because exporters are reportedly keeping much of their hard currency earnings abroad, the State is denied the hard currency earned from a positive trade balance needed to meet external debt obligations.

Facing an additional \$20 billion or more in 1993, Russia appealed to Western governments, which hold about \$40-50 billion of the total debt, to reschedule payments. Since December 1991, commercial and official creditors had already been deferring much of the debt interest and principal repayment due. In 1992, the Paris Club of government creditors met with Russian officials to negotiate a rescheduling agreement that would have allowed Russia to pay back its outstanding 1992 debt over 10 years, with a 5-year grace period on interest payments.

A final agreement on the Paris Club rescheduling was expected in early 1993 but was delayed due to the Russian-Ukrainian debt negotiations. Russia and Ukraine reached an agreement concerning the allocation of FSU debt, so that in April the Paris Club was able to reschedule the bulk of Russia's 1993 debt obligation. Of the \$20 billion in interest and principal owed by Russia in 1993, \$15 billion was rescheduled. Roughly half of this amount will be repaid over 10 years, with a 5-year grace period; the rest is to be repaid over 7 years, with a 2-year grace period. With the rescheduling, Russia will still owe \$2 billion in 1993, including \$1.1 billion to the United States. This agreement paves the way for rescheduling of approximately \$20 billion of commercial debt held by the London Club, which is comprised of 600 commercial bank creditors to the FSU.

FSU Interrepublic Trade in Flux

With the breakup of the USSR and the dismantling of the planned economy, trade between the successor States has noticeably declined for several reasons. First, the centrally planned and managed system, which had coordinated interrepublic "trade," ended along with the Union. Second, payment problems have developed as a result of the weakness of the ruble and the lack of an effective payment-clearing mechanism. Third, output across sectors has been falling in the republics. Also, because of high inflation, enterprises prefer not to sell to the State for conventional money at fixed prices. This is disruptive because governments are still directly handling much of interrepublic trade. Fourth, continued State controls over interrepublic trade, mostly in the form of export controls and licensing, impede trade.

Comprehensive data on interrepublic trade are still scarce. Goskomstat Rossii (GR) has released some figures which show that in 1992 Russian exports to the other republics fell 7 percent, while imports declined 12 percent (in value terms).⁵⁴ However, Russian trade with the FSU nations may have declined by as much as 25-30 percent.⁵⁵ Another likely reason for the trade decline is that Russia diverted more of its energy exports to the world market to earn hard currency.

Prices for most intra-FSU trade remain well below world market levels (even when converted from rubles to dollars using the current exchange rate in Russia). The exception to this is trade between Russia and the Baltic nations. When the Baltics refused to join the Commonwealth of Independent States (CIS) in early 1992, Russia required them to buy its energy and other raw materials at world prices in hard currency. However, it is unclear to what extent Russia held the Baltics to this requirement, as trade agreements signed during 1992 specified accounting in rubles and payments based on clearing accounts. In any case, it appears they paid higher prices for Russian energy and raw materials than the other CIS countries, and perhaps Georgia.

According to GR, in 1992, Russia ran a large surplus in interrepublic trade (750 billion rubles, not including trade with the Baltic nations). This reflects Russia's status as the FSU's dominant supplier of energy and metals. According to one report, the prices Russia paid for FSU imports during 1992 were 60-70 percent of world levels, while those it received for exports to FSU republics were 30-40 percent of world prices.⁵⁶ According to this report, this difference resulted in Russia implicitly subsidizing **Kazakhstan** by \$2.8 billion and **Ukraine** by \$7.5 billion. Russia planned to raise energy prices charged to FSU republics in 1993 to world levels. Yet, in February 1993, Prime Minister Viktor Chernomyrdin said that given the close economic ties between republics, Russia was not prepared for the additional disruptions that would result if it began charging world prices for its energy.

Integration of the republics' economic and trade policies under the auspices of the CIS has not yet occurred. While attempts have been made to coordinate trade policies and establish trade-facilitating institutions, such as a payment-clearing mechanism and unified customs policy, little progress has been made. Republics have followed their own policies, and trade agreements have mostly taken the form of bilateral arrangements. In general, the CIS has not established many strong institutions or provided much coordination. Several of the republics, including **Ukraine, Turkmenistan, Moldova, and Azerbaijan**, have limited their involvement in the creation of CIS structures. Conflicts between member States is one reason for the weakness of the CIS.

The republics have also erected barriers to interrepublic trade. Most agricultural products are considered strategic goods, with governments strictly controlling trade. Licenses are required for export of most agricultural goods and stiff penalties for unauthorized export have been introduced. For example, **Kazakhstan**, the only republic in 1992/93 with surplus grain for export, established strict measures to keep the grain trade almost a State monopoly. **Ukraine** also closely controls the

Table 25—External agricultural imports, FSU republics, 1990

Republic	Wheat	Barley	Corn	Wool	Sugar, raw	Coffee	Tea	Tobacco	Cotton lint
1,000 tons									
Russian Federation	4,824	1,755	5,540	24	1,047	15	44	4	19
Ukraine	1,204	106	1,659	15	1,054	12	9	4	--
Belarus	1,031	357	1,206	11	161	1	--	--	--
Moldova	296	58	227	1	64	--	--	1	--
Kazakhstan	67	--	270	2	245	2	--	--	--
Uzbekistan	1,857	1,079	716	--	655	--	--	--	--
Kyrgyzstan	159	79	181	2	224	--	--	--	--
Tajikistan	316	35	152	1	--	--	--	--	--
Turkmenistan	na	na	na	na	na	na	na	na	na
Armenia	287	31	223	--	--	--	--	--	--
Azerbaijan	na	na	na	na	na	na	na	na	na
Georgia	735	18	324	--	--	2	52	8	--
Lithuania	34	28	252	--	--	--	--	2	--
Latvia	207	59	347	3	207	4	--	--	--
Estonia	na	na	na	na	na	na	na	na	na
Total ¹	11,017	3,605	11,097	58	3,657	36	104	19	19
USSR	15,025	3,396	13,227	69	3,919	58	162	36	55

na = not available.

-- = negligible or none.

¹ May not add up to USSR totals due to unavailable information.

Sources: *Vneshnyaya torgovlya suverennykh respublik i pribaltiyskikh gosudarstv v 1990 godu* (Moscow, 1992); *Vneshnyaya torgovlya SSSR v 1989-90 gg.* (Moscow, 1992).

grain trade, while Russia has banned the export of sunflowerseed. Yet, for many agricultural products regional governments are increasingly asserting themselves by establishing trade agreements among themselves, involving agricultural as well as nonagricultural goods.

FSU Agricultural Trade To Continue Decline in 1993/94

With the breakup of the USSR in 1991, comprehensive external trade data for specific republics or the CIS as a whole have generally been unavailable, or of uncertain accuracy. For example, table 25 provides data on agricultural imports from beyond the FSU's borders, by republic, for 1990, the last year for which USSR official data were made available. For wheat, corn, tea, and cotton lint, major differences exist between the total USSR import figure given and the sum of imports by republic.

Although flawed or incomplete, the figures in this table indicate each republic's share of total Soviet agricultural imports. The **Russian Federation** was by far the largest importer of most of the products identified. Exceptions are raw sugar and coffee, of which **Ukraine** was also a heavy importer.

Statistics on 1992 FSU agricultural imports, by republic or in aggregate, from non-FSU sources have not been released, except for the **Russian Federation**, whose external trade data are discussed below.

Russian imports of most agricultural products declined in 1992, with the notable exceptions of grain, sugar, and vegetable oil (table 26). Grain imports, totaling 29.5 million tons and valued at \$2.7 billion, were by volume up more than 50 percent from 1991. The relatively high imports of grain and raw sugar reflect the authorities' attempt to prevent domestic consumption of important foodstuffs and feed supplies from falling too steeply. Despite improved 1992 grain harvest results, State procurement of grain remained low as a share of total production, thus necessitating large grain imports to supply the State-owned processing sector. At a cost of approximately \$91 per ton, the Russian Government in 1992 paid prices 30-50 percent higher for imported grain than for domestic output. Credit guarantees by governments of exporting countries and other trade-financing concessions also explain grain's dominant import position.

Russian sugar imports in 1992 were also higher than in 1991, increasing 14 percent. The bulk of raw sugar imports con-

**Table 26—External agricultural imports,
Russian Federation**

Commodity	1990	1991	1992
<i>1,000 tons</i>			
Wheat	4,824	10,689	18,300
Barley	1,755	2,882	2,736 ¹
Corn	5,540	5,457	5,500
Wheat flour	na	556	656 ¹
Rice	na	322	na
Total grain	na	19,199	29,500
Oilseeds	na	313	65 ¹
Oilseed meal	na	487	na
Vegetable oil, edible	na	201	453
Coffee	15	45	35
Cocoa beans	43	17	12 ¹
Tea	44	143	47
Tobacco	4	31	8 ¹
Cotton lint	19	15	na
Wool	24	153	na

na = not available.

¹ January–June 1992.

Sources: Statkom SNG and Goskomstat Rossii, various reports.

tinued to come from Cuba. In 1992, Russia reportedly began pricing imported sugar, as well as the energy exported to Cuba, closer to world levels. The increase in vegetable oil imports can be attributed to the availability of export credit guarantees from exporting nations, such as the United States and the European Community (EC), and food aid. The major cause of the fall in other agricultural imports was the breakdown in trade with former CMEA countries and lower hard currency supplies.

Given the general trends in Russian agricultural imports, the outlook for FSU agricultural imports in 1993/94 is one of continued decline. The main reasons for this fall concern the FSU's hard currency constraints and large debt obligations. The ability to purchase traditional net import agricultural products will continue to depend largely on foreign export-credit guarantees, concessional loans, food donations, and barter, which will also determine import mix and source.

The Russian Federation is also indicating that 1993/94 agricultural import levels will be lower than in 1992/93. The MFER has provided calendar year 1993 projections for Russian agricultural imports, which they estimate at \$6.1 billion.⁵⁷ Grain imports in calendar 1993 are projected to fall as much as 45 percent. However, a drop this large seems unlikely, given the amount of Western aid and credit commitment in 1993. The MFER forecasts a substantial drop in sugar imports, most likely due to expected increased domestic pro-

duction of beet sugar and decreased consumer demand for sugar. However, imports of vegetable oil, protein meal, dry milk, infant foods, tea, and coffee are projected to increase. Many of these products are commonly included in Western humanitarian assistance packages to Russia and the other republics.

FSU interrepublic agricultural trade during 1992 also contracted. Mixed harvest results, economic decentralization, and more restrictive trade measures explain much of the decrease. The breakdown of interrepublic agricultural trade has seriously disrupted republics' agro-industrial economies, with the Transcaucasus and Central Asian republics most severely affected. Recent data for the Russian Federation show that while most of its agricultural imports come from external, non-FSU sources, slightly more Russian agricultural exports are sent to the other republics (table 27). The next article provides information on the traditional interrepublic trade flow of agricultural goods. The outlook for interrepublic agricultural trade is one of continued contraction, as domestic production and utilization patterns continue to change and trade remains largely dependent on bilateral trade agreements.

International Community Provides Assistance to FSU

Given the disruptions in FSU agricultural production and trade, many nations have put together food assistance packages. The needs of the republics vary greatly, depending on agricultural production, the extent to which distribution and processing of foodstuffs has been affected, civil unrest, and the capability of republics to buy supplies on the world market. Given these differing conditions, donor nations have provided a variety of assistance programs, including export credit guarantees, long-term concessional loans, and outright donations of foodstuffs and medicine. Close to \$20 billion in food-related assistance is estimated to have been committed since 1990, with more than half in the form of export credit guarantees.

While putting a precise monetary value on total assistance is difficult, approximately \$60 billion is reported to have been committed to the region since September 1990.⁵⁸ This figure includes all forms of assistance, such as loans, export credit guarantees, and humanitarian aid. Of the \$60 billion, the EC (includes the EC and its member-states) has committed around 70 percent, while Germany claims to have provided over half of the EC's share. However, it is unlikely that the entire commitment has been disbursed. For example, in April 1992, the G-7 group of industrialized nations promised \$24 billion in aid to the FSU. As of April 1993, only \$13.3 billion had been delivered. The U.S. share of total support to the FSU (\$12.2 billion) was 17 percent. The difference between the amounts allocated and delivered resulted mainly from the nondisbursement of committed IMF and World Bank loans, including \$6 billion to create a ruble stabilization fund. This funding was not allocated because Russia failed to meet IMF economic targets.

On April 15, 1993, the G-7 announced a financial aid package for the Russian Federation totaling \$43.4 billion, of which \$21.4 billion is new funding. The package includes \$11.4

Table 27 – External and internal trade, Russian Federation, 1990

Commodity	Total exports	Exports to:		Total import	Imports from:	
		FSU	Non – FSU		FSU	Non – FSU
Percent						
Total	100	69.1	30.9	100	46.8	53.2
Industrial	100	68.9	31.1	100	47.2	52.8
Including:						
Oil industry	100	51.6	48.4	100	99.9	0.1
Machine building	100	70.1	29.9	100	41.4	58.6
Light industry	100	86.7	13.3	100	38.3	61.7
Food industry	100	59.7	40.3	100	54.1	45.9
Agriculture	100	51.5	48.5	100	37.1	62.9
Other	100	81.0	19.0	100	74.2	25.8
Source: Narodnoe khozyaistvo Rossiiskoy Federatsii, 1992, p. 35.						

Source: *Narodnoe khozyaistvo Rossiiskoy Federatsii*, 1992, p. 35.

billion in new assistance from the IMF, the World Bank, and the European Bank for Reconstruction and Development (EBRD); \$10 billion in export credits and guarantees; \$15 billion in rescheduling of FSU debt owed to the Paris Club; and \$7 billion in prior commitments, including the \$6-billion-ruble stabilization fund and \$1 billion in previously allocated World Bank loans.

The new funding is to be disbursed in three stages. Although no formal requirements have been set, the G-7 ministers stressed the need for Russia to bring monetary and credit growth under control and recommended that the first installment of IMF loans be distributed “when Russia makes a political commitment to adopt an appropriate adjustment policy as indicated by a policy statement.” The first installment of \$3 billion, in two \$1.5 billion tranches, will be disbursed by the IMF under a special lending program.

Further large-scale assistance packages will continue to be directly tied to the commitment of the republics to economic reform. Short-term aid, mostly humanitarian assistance, will be used to reduce the possibility of civil unrest and to bolster public support for reform. Alternative forms of assistance are being studied to increase the involvement of the private sector and reduce bureaucratic delays. However, difficulties in implementing effective assistance programs and increased concern over domestic issues could lower the international communities’ commitment to the region. Also, given the scale of transforming an economy based for more than 70 years on central planning into a market-based one could require more resources than the West is willing or able to provide. Massive financial assistance could actually result in slowing down the reform process, if aid is not specifically targeted at facilitating the difficult and often painful economic reforms the republics must implement to create a market economy.

Republics Heavily Dependent on Food Imports

Despite the large share of agriculture in the economies of the FSU republics, most have been import-dependent for several of the primary agricultural and food commodities. Disintegration of traditional interrepublic economic ties, combined with declining gross agricultural output throughout the former Soviet Union, have negatively affected the ability of certain republics to satisfy internal food requirements. No FSU republic is currently in a position to provide all its food requirements independently. All 15 countries of the former Soviet Union depend to a certain degree on food imports from other FSU republics and other foreign sources. [Andrew Solomon]

Particular republics, however, fare better than others (table 28). For example, **Ukraine and Moldova** have consistently been net exporters to other republics of primary commodities. To a lesser extent, **Belarus and the Baltics** also export large quantities of food, primarily meat and dairy products. In good years, **Kazakhstan** exports grain, wheat in particular. In contrast, the **Russian Federation**, the Transcaucasus republics, and the republics of Central Asia depend heavily on food imports from other republics. Although the latter republics are the most vulnerable to disruptions in interrepublic trade and changing terms of trade with traditional suppliers, food imports are important to all 15 republics of the former Soviet Union.

The Russian Federation has been import-dependent for all primary food commodities. Each year Russia imports large quantities of grain, most of which is earmarked for the Non-Black Soil Zone in European Russia and other deficit regions in Siberia and the Far East. It is also the largest importer of meat and dairy products of all the FSU republics. Meat imports are primarily directed to the major industrial cities in the Non-Black Soil Zone and to Moscow and St. Petersburg. During the 1980's, the **Russian Federation** imported upwards of 1.5 million tons of meat each year, about half through interrepublic trade. Since 1990, the majority of meat imports have come from sources outside the former USSR. And although a large producer of sunflower oil, Russia remains a net importer of vegetable oil. In addition, Russia depends heavily on sugar imports from **Ukraine** and raw cane sugar from Cuba.

Whereas the Russian Federation is strongly import-dependent, **Ukraine** is the least dependent on food imports of all 15 FSU republics. Furthermore, it supplies a wide range of agricultural and food commodities, including grain, vegetable oil, meat, and dairy products, to Russia, Central Asia, and the Transcaucasus republics. Ukraine has also been the largest-supplier of sugar to the republics, but has recently decreased shipments to other republics as terms of trade are renegotiated. Increasingly, the republics are searching for alternative sources for sugar outside of Ukraine.

With the exception of grain imports from Ukraine and Kazakhstan, **Moldova** also maintains positive trade balances for most primary agricultural commodities. Previously referred to as "the garden of the Soviet Union," Moldova sells approximately half its agricultural and food output to republics of the former Soviet Union. Traditional markets for Moldovan exports include Russia, Ukraine, and Belarus. Foremost among its exports are fruits, vegetables, sugar, and dairy products (tables 29-32).

Primarily known for supplying grain to other republics, **Kazakhstan** exports vegetables and meat as well. It relies on imports of several important commodities, including sugar from Ukraine, milk from Belarus and Russia, and vegetable oil from Azerbaijan and the neighboring republics in Central Asia.

Belarus relies on interrepublic trade for supplies of grain, sugar, fruits, vegetables, and vegetable oil. It, however, is an important source of meat and dairy products for Russia, the Transcaucasian republics, and Central Asia.

The **Baltic States** are net exporters of meat and dairy products, but they are import-dependent for vegetable oil, sugar, and grain. Grain imports, including feed grains from Russia, Ukraine, and Kazakhstan, are especially important in order to support the region's strong livestock sector. All three Baltic republics import raw sugar, though Latvia and Lithuania are net exporters of processed sugar. With one of the highest levels of per capita sugar consumption and very little production capacity, Estonia depends entirely on sugar imports.

The **Transcaucasus** and **Central Asia** republics produce sizable crops of fruits and vegetables each year and are able to supply the other republics throughout the FSU with these commodities. Because of large cottonseed oil production, Azerbaijan and the Central Asian republics (excluding Kyrgyzstan) are traditional net vegetable oil exporters to other republics. These two regions, however, are net importers of grain, flour, meat and dairy products, and sugar.

Table 28--Traditional primary food trade of the FSU, by republic¹

Republic	Commodity	Average exports 1988-1990	Average imports 1988-1990	Average net imports 1988-1990	Production per per capita	Human consumption per capita
		----- 1,000 tons -----			----- Kilograms -----	
Russian Federation	Grains	1,161	21,544	20,383	--	117
	Meat and meat products	65	1,728	1,663	68	72
	Milk and milk products	370	8,968	8,598	373	389
	Sugar	323	2,732	2,409	27	48
	Vegetable oil	60	555	495	8	10
	Fruits	18	1,511	1,493	22	40
	Vegetables	23	1,636	1,613	74	93
Ukraine	Grains	5,028	4,180	-848	--	139
	Meat and meat products	369	35	-361	85	69
	Milk and milk products	2,031	175	-1,856	471	369
	Sugar	3,570	0	-3,570	129	49
	Vegetable oil	320	58	-262	21	11
	Fruits	143	47	-96	64	47
	Vegetables	360	91	-269	138	114
Belarus	Grains	34	3,376	3,342	--	125
	Meat and meat products	277	12	-265	116	73
	Milk and milk products	1,893	6	-1,887	728	422
	Sugar	0	161	161	34	46
	Vegetable oil	16	76	60	2	9
	Fruits	1	54	53	44	42
	Vegetables	10	147	137	80	82
Moldova	Grains	60	746	686	--	173
	Meat and meat products	65	2	-63	82	57
	Milk and milk products	110	18	-92	353	309
	Sugar	165	8	-157	97	47
	Vegetable oil	80	15	-65	30	13
	Fruits	586	9	-577	468	79
	Vegetables	215	10	-205	284	117
Kazakhstan	Grains	3,935	585	-3,350	--	139
	Meat and meat products	165	12	-153	93	70
	Milk and milk products	39	241	202	332	302
	Sugar	25	261	236	20	39
	Vegetable oil	14	40	26	5	11
	Fruits	6	16	10	19	20
	Vegetables	75	42	-33	75	73
Baltics (Lithuania) (Latvia) (Estonia)	Grains	12	3,730	3,718	--	96
	Meat and meat products	85	1	-84	134	81
	Milk and milk products	690	4	-686	791	447
	Sugar	44	33	-11	60	47
	Vegetable oil	0	13	13	2	8
	Fruits	2	18	16	32	42
	Vegetables	9	13	4	79	75
Transcaucasus (Armenia) (Azerbaijan) (Georgia)	Grains	0	4,219	4,219	--	149
	Meat and meat products	0	72	72	29	43
	Milk and milk products	4	1,122	1,118	140	359
	Sugar	0	201	201	3	38
	Vegetable oil	4	19	15	4	4
	Fruits	163	1	-162	205	46
	Vegetables	92	9	-83	119	101
Central Asia (Uzbekistan) (Kyrgyzstan) (Tajikistan) (Turkmenistan)	Grains	15	7,050	7,035	--	160
	Meat and meat products	4	74	70	28	38
	Milk and milk products	1	507	506	153	207
	Sugar	66	181	115	47	47
	Vegetable oil	60	10	-50	21	10
	Fruits	99	1	-98	64	25
	Vegetables	230	2	-228	128	99

-- = not applicable. ¹ Trade data reflects total, including interrepublic; Data for grain are for 1989 only, exports do not include external; Fruits and vegetables data for 1988 and 1990 only.

Table 29--Import and export of vegetables, fresh and processed, (including interrepublic trade), FSU republics, calendar year 1991

Imported by:	Exported from:								Imports		
	Russian Fed.	Ukraine	Belarus	Moldova	Kazakhstan	Uzbekistan	Turkmenistan	Azerbaijan	FSU	Non-FSU	Total
<i>Metric tons</i>											
Russian Fed.	x	103,847	4,641	88,000	14,484	442,817	55,653	129,008	998,538	24,032	1,022,570
Ukraine	1,424	x	172	16,375	126	15,767	7,769	45,440	89,084	3,951	93,035
Belarus	6,700	15,132	x	16,880	684	18,145	4,101	18,840	83,625	9,515	93,140
Moldova	220	2,739	679	x	--	186	--	810	4,634	--	4,634
Kazakhstan	2,682	1,036	1,264	--	x	24,809	7,229	--	40,438	--	40,438
Uzbekistan	100	170	584	--	1,040	x	--	--	1,894	--	1,894
Kyrgyzstan	42	--	--	--	--	1,397	--	--	1,660	--	1,660
Tajikistan	--	88	--	--	101	55	--	--	244	--	244
Turkmenistan	150	268	--	--	598	548	x	--	1,788	--	1,788
Armenia	--	159	--	--	--	283	1,019	--	1,461	--	1,461
Azerbaijan	224	203	53	17	848	143	61	x	1,664	14,454	16,118
Georgia	323	324	1	--	181	--	139	--	968	--	968
Lithuania	219	301	138	--	--	2,022	2,900	675	6,725	--	6,725
Latvia	280	254	162	--	100	92	1,248	945	3,200	--	3,200
Estonia	26	180	4	--	--	739	167	545	1,661	--	1,661
Exports to:											
FSU	12,390	124,701	7,698	121,272	18,162	507,003	80,286	196,263			
Non-FSU	122	584	966	--	--	--	--	--			
Total	12,512	125,285	8,664	121,272	18,162	507,003	80,286	196,263			

-- = negligible or none.
¹ Includes imports from all 15 former USSR republics.
Sources: *Strany-chleny SNG statisticheskii ezhegodnik*, 1992.

Table 30--Import and export of fruits and berries, including grapes (interrepublic trade included), FSU republics, calendar year 1991

Imported by:	Exported from:								Imports		
	Russian Fed.	Ukraine	Belarus	Moldova	Kazakhstan	Uzbekistan	Tajikistan	Georgia	FSU ¹	Non-FSU	Total
<i>Metric tons</i>											
Russian Fed.	x	53,829	24	165,070	1,107	111,874	24,706	26,721	426,685	38,938	465,623
Ukraine	370	x	--	17,061	--	1,035	--	635	19,497	1,229	20,726
Belarus	2,200	5,514	x	22,144	80	1,677	92	249	33,653	4,081	37,734
Moldova	--	141	--	x	--	--	--	--	141	--	141
Kazakhstan	1,079	5,036	--	2,581	x	4,101	375	949	14,935	--	14,935
Uzbekistan	7	20	--	--	378	x	230	--	635	16	651
Kyrgyzstan	--	--	--	--	--	829	4	--	833	--	833
Tajikistan	--	9	--	--	--	84	x	--	93	--	93
Turkmenistan	20	--	--	--	--	30	292	--	342	--	342
Armenia	--	--	--	--	--	--	--	--	--	--	0
Azerbaijan	--	115	--	109	325	44	--	11	604	511	1,115
Georgia	--	95	--	--	--	--	--	--	95	--	95
Lithuania	36	71	--	--	--	304	82	--	745	--	745
Latvia	--	123	25	--	31	162	--	--	341	--	341
Estonia	110	47	--	--	--	611	94	--	958	--	958
Exports to:											
FSU	3,822	65,000	49	206,965	1,921	120,751	25,875	28,565			
Non-FSU	30	306	103	--	--	--	--	--			
Total	3,852	65,306	152	206,965	1,921	120,751	25,875	28,565			

-- = negligible or none.
¹ Includes imports from all 15 former USSR republics.
Sources: *Strany-chleny SNG statisticheskii ezhegodnik*, 1992.

Table 31 -- Import and export of potatoes (including interrepublic trade), FSU republics, calendar year 1991

Exported from:									Imports		
Imported by:	Russian Fed.	Ukraine	Belarus	Moldova	Kazakhstan	Uzbekistan	Turkmenistan	Azerbaijan	FSU ¹	Non – FSU	Total
Metric tons											
Russian Fed.	x	29,956	234,478	128	6,047	6,796	--	4,596	326,104	311,271	637,375
Ukraine	15,761	x	11,162	62	118	--	--	--	27,307	62,895	90,202
Belarus	54	1,174	x	179	--	--	--	--	1,673	4,351	6,024
Moldova	7,872	2,731	21,614	x	1,807	20	--	--	34,044	--	34,044
Kazakhstan	7,428	60	30,786	--	x	347	--	--	39,455	90	39,545
Uzbekistan	123,200	437	23,035	--	6,656	x	--	--	153,328	24,680	178,008
Kyrgyzstan	7,603	146	3,825	--	106	1	--	--	11,681	1,731	13,412
Tajikistan	6,582	403	114	--	5,041	54	--	--	12,194	--	12,194
Turkmenistan	10,177	488	2,827	--	3,778	200	x	--	17,814	40,000	57,814
Armenia	3,780	788	1,879	--	--	--	--	--	6,447	--	6,447
Azerbaijan	8,994	1,059	7,426	--	1,337	--	--	x	18,852	41,131	59,983
Georgia	8,488	546	4,695	--	1,042	--	--	--	14,771	14,771	29,542
Lithuania	--	55	--	--	--	--	--	--	55	--	55
Latvia	--	93	66	--	--	--	--	--	159	--	159
Estonia	--	15	--	--	--	--	--	--	15	--	15
Exports to:											
FSU	199,939	37,951	341,907	369	25,932	7,418	0	4,596			
Non – FSU	--	27	20	--	--	--	--	--			
Total	199,939	37,978	341,927	369	25,932	7,418	0	4,596			

-- = negligible or none.

¹ Includes imports from all 15 former USSR republics.

Sources: *Strany-chleny SNG statisticheskii ezhegodnik*, 1992.

Table 32—Area, yield, and production of selected crops, FSU republics

Republic	Potatoes			Vegetables			Fruits, berries, and grapes		
	1990	1991 ¹	1992 ²	1990	1991	1992 ²	1990	1991 ¹	1992 ²
Area 1,000 hectares									
Russian Federation	3,124	3,187	3,150	618	662	660	766	769	700
Ukraine	1,429	1,533	1,456	456	477	470	823	810	802
Belarus	638	654	644	39	51	50	117	116	105
Moldova	41	47	45	71	78	64	320	324	205
Kazakhstan	206	217	225	71	75	82	88	84	85
Uzbekistan	42	40	45	140	166	170	228	230	235
Kyrgyzstan	25	23	24	21	19	20	41	40	42
Tajikistan	14	13	13	24	28	25	81	82	76
Turkmenistan	4	3	3	36	28	28	34	34	35
Armenia	22	23	22	18	22	20	61	60	57
Azerbaijan	24	22	22	40	40	28	269	262	264
Georgia	28	23	23	36	30	30	207	210	200
Lithuania	112	106	105	16	21	23	35	35	36
Latvia	80	83	80	11	13	14	25	26	26
Estonia	46	52	54	5	6	6	9	9	10
Total FSU	5,836	6,017	5,911	1,601	1,708	1,700	3,111	3,008	2,878
Yield Tons per hectare									
Russian Federation	9.9	10.8	12.0	15.4	14.6	15.0	3.9	8.4	9.0
Ukraine	11.7	9.5	9.2	13.9	11.9	12.5	4.5	2.7	7.5
Belarus	13.5	13.7	13.0	17.8	17.4	17.0	3.2	2.7	3.0
Moldova	7.2	6.2	7.6	15.7	12.1	12.0	11.3	9.7	11.5
Kazakhstan	11.3	9.9	10.2	15.4	12.1	12.8	12.2	5.3	9.5
Uzbekistan	8.0	8.7	8.2	19.2	18.8	19.3	12.3	8.8	12.0
Kyrgyzstan	13.6	13.7	13.0	19.6	18.0	20.0	10.4	7.1	10.0
Tajikistan	14.3	14.1	14.0	19.5	19.3	20.5	11.1	7.7	10.5
Turkmenistan	7.8	10.0	10.0	11.1	13.7	14.0	11.5	12.2	10.0
Armenia	9.5	12.0	12.0	21.1	19.1	21.0	10.0	12.0	10.0
Azerbaijan	7.8	8.1	8.2	20.0	18.9	20.0	10.5	11.9	10.5
Georgia	10.6	9.7	10.0	11.1	10.8	11.0	12.4	11.5	12.0
Lithuania	14.0	14.2	14.5	17.1	18.5	17.5	2.5	7.8	7.0
Latvia	12.7	11.5	12.2	14.2	15.1	15.0	1.0	1.5	3.0
Estonia	12.8	11.3	12.8	16.6	18.1	18.3	2.4	3.0	3.5
Total FSU	10.8	10.7	11.0	15.5	16.2	16.4	10.4	9.4	9.8
Production 1,000 tons									
Russian Federation	30,848	34,330	37,800	10,328	10,426	9,900	2,978	2,747	3,000
Ukraine	16,732	14,550	13,395	6,666	5,932	5,880	3,738	2,210	2,300
Belarus	8,591	8,958	8,370	749	918	850	373	311	340
Moldova	295	291	340	1,177	989	770	1,841	1,462	1,250
Kazakhstan	2,324	2,143	2,295	1,136	955	1,040	440	164	350
Uzbekistan	336	351	360	2,843	3,348	3,300	1,401	998	1,300
Kyrgyzstan	365	326	310	487	399	400	184	114	210
Tajikistan	207	181	170	528	628	510	406	298	350
Turkmenistan	35	30	30	411	388	400	216	223	210
Armenia	213	275	260	390	425	420	300	358	270
Azerbaijan	185	180	180	856	805	780	1,515	1,622	1,410
Georgia	294	226	210	443	363	330	1,282	1,180	1,080
Lithuania	1,573	1,508	1,520	295	398	400	87	276	250
Latvia	1,016	944	970	170	209	210	24	60	66
Estonia	619	592	690	105	121	110	22	30	35
Total FSU	63,633	64,823	66,900	26,584	26,171	25,300	14,807	12,393	12,421

¹ 1991 data for potatoes are estimated except for Russian Federation, Ukraine, Kazakhstan, and Baltics; data for fruits, berries, and grapes are estimated for all republics except for Ukraine, Kazakhstan, and Lithuania. ² 1992 data are estimated.
Sources: *Narodnoe khozyaistvo*, various issues.

U.S. Agricultural Credits and Aid to Republics Total Over \$6 Billion

Increased assistance to the FSU republics during fiscal year 1992 helped increase their agricultural imports from the United States more than 50 percent compared to fiscal 1991. U.S. assistance to the region in fiscal 1993 includes increased concessional purchasing programs and commodity donations, which have become more prominent because of the FSU's debt situation. [Sharon S. Sheffield]

Since the first allocation of GSM-102 export credit guarantees to the former USSR in January 1991, the United States has announced \$6-7 billion in credits and food aid to the FSU republics (boxes 1-3 and tables 33 and 34). Since September 1991, all the GSM-102 export credit guarantees allocated to the FSU, Russia and Ukraine (the only 2 republics to receive their own credit line) provide 100 percent guarantee of the principal and guarantee interest equal to the prevailing rate for 52-week Treasury bills. The GSM-102 program normally carries a 98-percent USDA guarantee of the principal. Beginning in fiscal year 1992, the United States provided 12 of the FSU republics with commodity donations and long-term credit for concessional purchases of U.S. agricultural goods. Programmed USDA assistance for fiscal 1993 (as of May 1993) is estimated at over \$1 billion.

U.S. Agricultural Exports to FSU Increased in Fiscal Year 1992, Fiscal 1993 Forecast Is Down

U.S. agricultural exports to the FSU in fiscal 1992 increased 50 percent from fiscal 1991, totaling \$2.7 billion (table 35). Much of this increase came from larger GSM-102 allocations in fiscal 1992. However, due to decreased demand and hard currency constraints, exports of agricultural products to the FSU in fiscal 1993 are projected to be down nearly 30 percent, near fiscal 1988 levels.

The main U.S. agricultural products exported to the FSU include wheat, corn, soybeans, and soybean meal. However, in fiscal 1992 there was an increase in other U.S. agricultural exports, mostly poultry and dairy products. Also, wheat replaced corn as the dominant grain purchased by the FSU (figure 9). The two main reasons for this change in commodity mix include the increased need to ensure the provision of bread and other grain products to the populace and declining livestock herds. Soybean and soybean meal exports to the FSU in fiscal 1992 increased, 19 and 21 percent, respectively.

However, calendar year 1992 exports were down 6 percent from calendar 1991, falling close to \$150 million (table 36). A comparison of calendar year value data in 1992 and 1991 indicates large falls in calendar 1992 exports (in value terms) of corn, soybeans, soybean meal, and poultry. On the other hand, the first sale of U.S. butter to the region since calendar 1990 was registered in calendar 1992. Differences between the fiscal and calendar data for 1992 can be explained by

increased sales during October-December 1991. The drop in exports during October-December 1992 was due to Russia's suspension from the GSM-102 credit program at the end of November 1992. Also, the price of soybeans in 1992 was \$10 per ton lower than in 1991.

The price of grain during fiscal 1992 increased from fiscal 1991 levels, with the average price of U.S. wheat sold to the FSU at \$116 per ton, up \$14 from fiscal 1991, but still \$31 less than in fiscal 1990. Reasons for the price differences include lower world wheat prices during fiscal 1991 and fiscal 1992 and increased bonuses through the Export Enhancement Program (EEP). The fiscal 1990 average per ton bonus was under \$20, compared with bonuses of \$45 and \$41 in fiscal years 1991 and 1992 (table 37). Over 35 million tons of wheat have been sold to the FSU under EEP since fiscal 1987, when the FSU first became eligible for the program. Since fiscal 1987, total bonuses amount to about \$1.2 billion, with an average EEP bonus of \$34 per ton. To date in fiscal 1993, over 2.25 million tons of wheat have been sold under the EEP, with an average per ton bonus of \$38.⁵⁹

Grain sales have traditionally accounted for the largest share of total U.S. agricultural exports to the FSU. On average, grain has made up around 80 percent of total U.S. farm exports to the FSU since fiscal 1981 (figure 10). Soybeans and soybean meal hold the next largest share, around 10 percent. As a result of GSM-102 credit packages, food aid, and evolving FSU import demand, U.S. exports to the FSU of other farm products, notably pork, dairy products, vegetable oil, and fruits and vegetables, have increased. Over the long term, the composition of FSU imports may shift from large amounts of grain to increased purchases of oilseeds and oilseed products (meal and oil). The basis for these shifts is the FSU's apparent comparative disadvantage in producing oilseeds, as well as the region's low-protein content in feeds, which makes the sector less efficient. While FSU grain imports are expected to fall in the longer term, the U.S. market share could remain stable as a result of financial assistance, competitive prices and export subsidies, and reliable supply.

FSU Agricultural Exports to U.S. Reach 20-Year High

While the bulk of U.S. exports to the FSU are agricultural goods, most FSU exports to the United States are nonagricultural.

GSM-102 Chronology**1991**

January One billion dollars is announced, \$900 million is made available immediately for the purchase of feed grains, wheat and flour, protein meal, soybeans, and almonds. The remaining \$100 million is made operational during February-March.

June President Bush announces an additional \$1.5 billion in GSM-102 credit guarantees for fiscal years 1991 and 1992. \$600 million is made operational for the purchase of wheat and flour, feed grains, protein meals, poultry meat, and hops during fiscal 1991.

August USDA advances \$315 million of the fiscal 1992 allocation of the \$1.5-billion package for the purchase of grain, protein meal, soy isolates, and poultry. Allocations for soybeans, hops, and almonds are lowered.

September USDA announces liberalizing coverage of \$200 million in GSM-102 credit guarantees for U.S. sales of agricultural commodities to the Soviet Union. CCC begins to guarantee 100 percent of the principal and increases coverage of interest on these loans.

Total fiscal 1991: \$1.915 billion

October On October 1, \$585 million in GSM-102 credit guarantees are announced by USDA for fiscal 1992, with \$185 million made operational immediately for the purchase of grain and protein meal. The remaining \$400 million is later allocated to increase the credit lines for grain and protein meal, and to establish credit for soybeans, poultry meat, and vegetable oil.

November President George Bush announces \$1.25 billion in credit guarantees.

December USDA allocates \$600 billion of the total \$1.25-billion package for the purchase of grain, protein meal, soybeans, vegetable oil, hops, almonds.

CCC announces that the remaining balance of the FY 1992 GSM-102 credit line can be used for sales of U.S. agricultural goods to the 12 republics of the former Soviet Union (FSU), not including the three Baltic nations.

1992

January USDA announces that sales to the FSU under the GSM-102 program will be made on a C&F or c.i.f. basis; i.e., the sales price includes both freight and commodity components.

February A total of \$400 million in GSM-102 guarantees is allocated during February for the purchase of grain, protein meal, soybeans, rice, vegetable oil, and hops. USDA also announces that Ukraine has chosen not to participate in this phase of the export credit guarantee program.

March The remaining \$250 million of the \$1.25-billion GSM-102 credit package is made operational for U.S. exports of grain, protein meal, soybeans, vegetable oil, almonds, rice, and hops. Again, Ukraine is excluded from this credit allocation.

April A new GSM-102 package of \$1.1 billion is announced, providing Russia with its own credit line of \$600 million. The remaining \$500 million became available to the other republics when program requirements were met. USDA also announces that Ukraine is an eligible destination under the March \$250 million GSM-102 credit allocation.

May-August Close to \$600 million is allocated to Russia for the purchase of grain, protein meal, tallow, and vegetable oil. Ukraine, the only FSU republic to qualify for the non-Russian allocation of \$500 million, received \$110 million for the purchase of grains (feed grain, wheat, rice).

September A fiscal 1993 \$1.15-billion package of GSM-102 credit guarantees and food aid is announced for Russia, \$100 million is made operational immediately for sales beginning October 1. Credit lines are provided for the purchase of grain and protein meal.

Total fiscal 1992:	FSU	\$1.835 billion
	Russia	\$645 million
	Ukraine	\$110 million

October Russia is allocated \$525 million in GSM-102 credit and \$134 million in food aid as part of \$1.15-billion package. GSM-102 provides credit guarantees for purchase of grain, protein meal, pork, and poultry meat. Food aid to include rice, butter, corn, pork, baby food, wheat, whole dry milk, chicken, and peanuts.

Ukraine receives \$200-million GSM-102 package, with \$70 million immediately for feed grain purchases.

November Russia has difficulties in repaying GSM-102 debt, falls into arrears and is suspended from program on November 30. In 1992, over \$800 million was paid on debt. Around \$110 million (wheat, pork) of \$525 million allocation is frozen. Ukraine's nonallocated credit line is also frozen.

1993

April The Paris Club of government creditors announces debt rescheduling agreement with Russia. Approximately \$15 billion in 1993 debt-service payments are rescheduled; half of this amount over 10 years, including a 5-year grace period, the rest is to be repaid over 7 years, including a 2-year grace period. Russia is required to make \$2 billion in payments during the remainder of 1993. Part of Russia's GSM-102 debt is included in this rescheduling.

May 13 Russia remains suspended from GSM-102 credit guarantee program, with \$850 million in total arrears. Banks request payment from USDA of \$677 million, receive \$398 million.

Box 2

USDA Assistance Programs in the FSU Republics

Beginning in fiscal 1992, several of the FSU republics received U.S. commodity donations and long-term financing for concessional purchases of foodstuffs. The three main USDA programs utilized for these purposes are P.L. 480 Title I, Section 416(b), and Food for Progress.

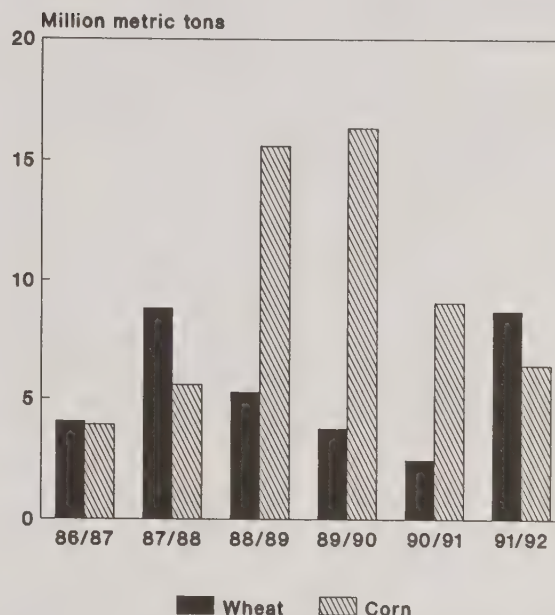
P.L. 480 Title I provides long-term credit for government-to-government concessional sales, with repayment terms of 10-30 years, grace periods of up to 7 years, and low interest rates. Six republics, Belarus, Moldova, Tajikistan, Lithuania, Latvia, and Estonia, received credit in fiscal 1992 and purchased corn, wheat, and soybean meal, worth \$60.2 million. As of April 1993, fiscal 1993 P.L. 480 Title I allocations, totaling \$55 million, had been announced for these republics, except Tajikistan, Estonia, and Turkmenistan.

Section 416(b) provides agricultural donations from surplus stocks of grains, oilseeds, and dairy products owned by the Commodity Credit Corporation (CCC). The donated commodities may be sold or bartered with USDA's approval to finance distribution, handling, and processing costs, or to generate funding for domestic programs to aid the needy. Most Section 416(b) donations to the FSU are distributed by private voluntary organizations (PVOs), such as CARE and CitiHope International. During fiscal 1992, all the republics, except Azerbaijan, Ukraine, Kyrgyzstan, Uzbekistan, Moldova, and Tajikistan, received Section 416(b) donations valued at nearly \$125 million. Donations during fiscal 1992 included nonfat dry milk, butter, butteroil, and corn. Allocations of fiscal 1993 Section 416(b) have been announced for all the republics, except Azerbaijan, Tajikistan, Uzbekistan, and the Baltics. Over 700,000 tons of feed wheat have been donated through Section 416(b) during fiscal 1993.

Food for Progress is an aid program using funds or commodities from P.L. 480 Title I, Section 416(b), or the CCC. During fiscal 1992, the FSU republics, except Azerbaijan, Moldova, Tajikistan, and the Baltics, received donations totalling \$71.5 million. Goods donated through Food for Progress included beans, bulgur, vegetable oil, infant formula, rice, wheat flour, wheat, evaporated milk, peas, and lentils. Initial fiscal 1993 allocations have been announced for the FSU republics, except Azerbaijan, Moldova, Turkmenistan, Lithuania, and Estonia. The April 1993 \$700 million agricultural credit and donation package announced for Russia at the Vancouver Summit was offered through the Food for Progress program and will be funded through a transfer of CCC funds to the P.L. 480 Title I budget.

Figure 9

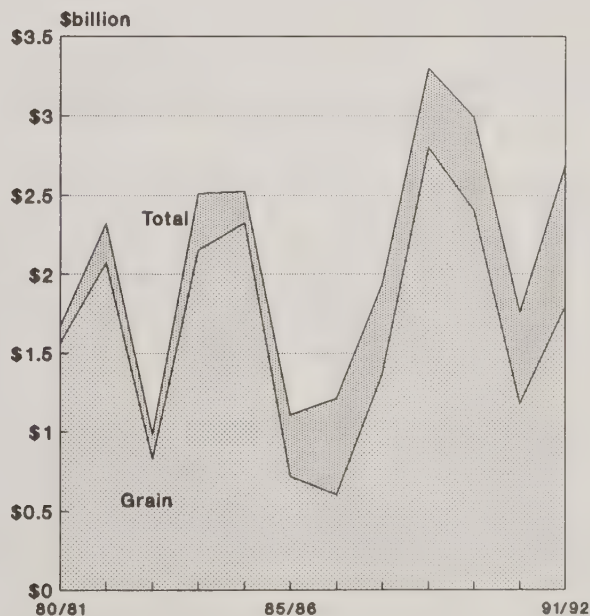
U.S. Grain Exports to the FSU (October/September)



Source: USDA, FATUS.

Figure 10

U.S. Agricultural Exports to the FSU (October/September)



Source: USDA, FATUS.

tural (table 38). The United States has a positive trade balance with the FSU, with a surplus in calendar 1992 of \$2.9 billion in aggregate trade, and \$2.3 billion in agricultural trade. Primary FSU agricultural exports to the United States are mostly in the form of raw materials, including casein, furskins, wool, and cotton. During calendar 1992, FSU agricultural exports to the United States more than doubled, mostly due

Box 3

U.S. Offers \$1.6-Billion Assistance Package for Russian Federation

On April 4, 1993, President Clinton committed \$1.6 billion in assistance to the Russian Federation, including \$700 million in new agricultural credits and donations and \$194 million in food assistance.

The \$700 million Food for Progress (FFP) allocation will be used to purchase and ship U.S. agricultural products. For this package, USDA Secretary Espy announced on May 3 that he will transfer CCC funds to the P.L. 480 Title I budget to cover freight and commodity costs. The credits are to be repaid over 15 years, with an initial 7-year grace period. The interest rate will be 3 percent during the grace period, and 4 percent thereafter.

The commodity portion of this allocation totals \$500 million, including \$433.5 million in credits and \$66.5 million in donations. The commodity mix of the FFP package includes bulk agricultural products and semi-processed/high-value goods, as follows: \$227.5 million for corn, \$105 million for soybean meal, \$66.5 million for butter (of which \$54.5 million consists of donations), \$56 million for wheat (of which \$12 million consists of donations), \$5 million for sugar, and \$40 million for high-value products such as vegetable oil, peanuts, poultry, and rice. Because the FFP credits are for concessional sales, Russia will not be able to apply for EEP bonuses for purchases of wheat, vegetable oil, and rice.

The transportation portion of this package totals \$200 million, and the United States and Russia will share ship-

ping costs. In accordance with U.S. cargo preference requirements, 75 percent of the commodities will be shipped on U.S. flag vessels. Russia will pay up to the foreign-flag-equivalent freight rate for all commodities except the donated butter. The United States will pay the remaining costs, including the difference between U.S.- and foreign-flag freight rates and all of the freight costs for the donated butter. Shipment of commodities under the FFP program is expected during June 1993.

The U.S. \$1.6 billion package also includes \$194 million in grant food aid, which is expected to consist largely of processed foodstuffs (vegetable oil, pork, poultry, and butter). Donations of pork, poultry, and butter from the fiscal 1993 \$250 million food aid package announced by the Bush Administration last October are included in this package. Assistance is provided through the use of Section 416(b) and the Food for Progress programs.

The Russian Government will directly distribute a portion of the \$194 million package to needy individuals, while other commodities are expected to be monetized. This involves the sale of donated foodstuffs on the market, possibly through commodity exchanges, then using the proceeds to finance domestic programs to aid the poor. This transaction helps to target assistance at those who need it and encourages the development of retail markets. Russian and American private voluntary organizations will disperse the remaining foodstuffs. An additional \$10 million has been allocated for the provision of U.S. infant formula, whole fat milk, cereals, and nutritional powered beverage to needy infants, children, and mothers in the Russian Far East.

to large increases in the sale of casein and hides and skins, as well as essential oils, cheese, molasses, oilseeds, and alcoholic beverages (table 39). FSU exports of agriculture-related products, such as fertilizers, fish and fish products, and farm machinery, also increased in 1992.

FSU agricultural exports to the United States in 1992 were nearly \$26 million, the highest in 20 years. While the United States will remain a net agricultural exporter to the FSU, the FSU may try to increase agricultural exports to the United States and other Western nations to earn hard currency. One area of growth could be exports of cotton. Despite lower quality, cotton produced in the Central Asian republics is already being sold on the world market for hard currency to purchase needed agricultural goods, such as grain. In the past, over three-quarters of FSU cotton exports were sold on a soft currency or barter basis to CMEA bloc nations.

U.S. Extends MFN to FSU Republics, GSP Status Proposed for Russia

Another factor which could increase FSU agricultural exports to the United States is the extension of Most Favored Nation

(MFN) status to many of the republics. As of May 1993, 10 republics have MFN status, including the three **Baltic nations, Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, and Ukraine.** The United States has trade agreements, which include the provision of MFN status, with all of these republics as well.⁶⁰ Trade agreements with **Georgia, Tajikistan, and Uzbekistan** are being negotiated. Reports in April 1993 indicated that agreements have been signed with **Azerbaijan and Turkmenistan**, which will lead to MFN status for those republics.

As part of the \$1.6-billion package announced in April for the Russian Federation, the Clinton Administration is proposing the elimination of Russia's exclusion from the Generalized System of Preferences (GSP), once the necessary legal requirements have been met. Under the GSP program, preferential, duty-free access is granted to 4,400 selected items from developing countries. The goal of GSP is to promote economic development and encourage market forces through the use of trade. If Russia receives GSP status, U.S. imports of GSP-eligible goods from Russia, totaling \$46 million or 12 percent of total trade in 1992, could increase.

Table 33--U.S. GSM-102 allocation to the FSU, Russia, and Ukraine

Commodity	FY 1991	FY 1992			FY 1993 ¹	
	FSU	FSU	Russia	Ukraine	Russia	Ukraine
\$1,000						
Feed grains	1,105.1	498.8	223.0	39.2	235.0	70.0
Wheat and wheat flour	252.5	810.3	250.7	65.8	190.0	0.0
Rice	0.0	8.0	0.0	5.1	0.0	0.0
Protein meals	381.9	310.2	125.4	0.0	40.0	0.0
Soybeans	123.3	122.8	0.0	0.0	0.0	0.0
Soy isolates	5.7	0.0	0.0	0.0	0.0	0.0
Poultry meat	35.3	18.0	0.0	0.0	30.0	0.0
Pork	0.0	0.0	0.0	0.0	30.0	0.0
Almonds	8.8	4.9	0.0	0.0	0.0	0.0
Hops	2.0	5.2	0.0	0.0	0.0	0.0
Vegetable oil	0.0	56.9	17.3	0.0	0.0	0.0
Tallow	0.0	0.0	28.3	0.0	0.0	0.0
Total ²	1,915.0	1,835.0	644.7	110.0	525.0	70.0

¹ Russia was suspended from the GSM-102 program at the end of November 1992. Approximately \$110 million in credit guarantees for the purchase of wheat and pork were unused, \$275 remains unannounced due to Russia's suspension. The remaining balance of Ukraine's credit line, \$130 million, remains unoperational.

² Includes freight.

Source: USDA.

Table 34--U.S. food assistance to FSU, fiscal 1992 ¹

	1,000 tons	\$1,000
Armenia	82.0	26,234.3
Belarus	156.2	32,143.8
Georgia	100.1	14,170.0
Kazakhstan	7.0	8,030.0
Kyrgyzstan	56.0	8,300.0
Moldova	71.7	6,951.4
Russia	102.9	88,215.4
Tajikistan	58.1	8,199.9
Turkmenistan	6.1	9,739.2
Estonia	170.8	18,196.4
Latvia	157.8	17,799.9
Lithuania	144.5	18,600.0
Total	1,113.1	256,580.3

¹ Includes PL480 Title I, Section 416(b), and Food for Progress.
Source: USDA.

Table 35--U.S. agricultural exports to the FSU, fiscal years 1986/87-1992/93

Commodity	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93 ¹
<i>\$ million</i>							
Wheat	325	822	820	550	194	1,022	210
Corn	280	541	1,872	1,849	979	725	241
Soybeans	12	172	90	76	99	122	5
Soybean meal	0	279	372	304	355	480	53
Other	42	120	145	210	131	342	167
Total	659	1,934	3,299	2,989	1,758	2,691	676
<i>1,000 tons</i>							
Wheat	4,055	8,829	5,294	3,739	2,451	8,716	1,753
Corn	3,907	5,585	15,573	16,326	9,077	6,424	2,483
Soybeans	71	831	299	342	441	543	21
Soybean meal	0	1,303	1,312	1,405	1,716	2,167	254

¹ October-February 1992/93.
Source: USDA.

Table 36--U.S. calendar year agricultural exports to the FSU ¹

Commodity	1989	1990	1991	1992
<i>\$ million</i>				
Wheat	827.1	542.5	421.9	940.0
Corn	2,135.4	1,100.9	1,231.0	655.8
Soybeans	82.3	61.1	166.5	53.8
Soybean meal	382.6	340.5	499.8	309.0
Poultry meat	9.4	97.6	65.3	16.3
Butter	10.8	57.3	0.0	63.9
Fruits, nuts, berries	19.5	15.7	9.4	4.7
Cotton	0.0	1.3	1.4	0.0
Tallow, inedible	26.0	22.6	5.2	13.8
All other	97.8	31.0	94.8	288.4
Total	3,596.9	2,270.5	2,495.3	2,345.7
<i>1,000 tons</i>				
Wheat	5,342.7	3,690.4	4,918.8	7,457.5
Corn	18,566.1	9,471.2	11,310.8	6,077.0
Soybeans	296.6	274.4	741.8	242.4
Soybean meal	1,417.9	1,568.4	2,322.0	1,438.2
Poultry meat	12.2	137.1	83.1	22.3
Almonds, shelled	7.2	5.0	2.5	0.8
Cotton, excl. linters	--	1.0	1.0	--
Tallow, inedible	77.3	67.8	15.3	40.8

-- = negligible or none.
¹ Includes transshipments through Canada.
Source: USDA.

Table 37--U.S. EEP wheat purchases by FSU ¹

Date	Amount	Bonus rate ²	Total bonus
	<i>Tons</i>	<i>\$/ton</i>	<i>\$</i>
1986/87	4,000,000	\$41.52	166,095,381
1987/88	8,804,000	\$32.01	281,798,920
1988/89	4,696,000	\$20.59	96,706,751
1989/90	3,799,350	\$19.96	75,822,425
1990/91	3,173,145	\$45.13	143,206,785
1991/92	8,417,745	\$41.53	349,596,280
1992/93 ¹	2,266,920	\$38.17	86,533,059
Total	35,157,160	\$34.13	1,199,759,601

¹ October/September year. Sales as of 4/27/93.

² Weighted average.

Source: USDA.

Table 39--U.S. agricultural imports from FSU

Commodity	1989	1990	1991	1992
	<i>Million tons</i>			
Casein and mixture	0.5	0.4	4.1	12.7
Furskins	13.8	9.6	3.5	7
Wool	1.5	--	0.9	--
Other animal prod.	0.2	4.9	0.9	0.4
Cotton	2.8	--	0.8	--
All other	1.1	2.3	1.5	5.7
Total	19.9	17.2	11.7	25.8

-- = negligible or none.

Source: USDA.

Table 38--U.S. trade with FSU, calendar year

Year ¹	U.S. exports		U.S. imports	
	Total	Agricultural	Total	Agricultural
	<i>\$ million</i>			
1972	572	459	88	4
1973	1,287	1,017	204	5
1974	631	324	335	9
1975	1,871	1,170	243	7
1976	2,424	1,605	214	8
1977	1,637	1,053	221	11
1978	2,328	1,765	529	12
1979	3,749	3,000	873	15
1980	1,601	1,138	432	10
1981	2,450	1,685	357	12
1982	2,605	1,871	229	11
1983	2,002	1,473	341	10
1984	3,343	2,878	556	11
1985	2,460	1,923	407	9
1986	1,257	658	557	17
1987	1,492	938	408	22
1988	2,849	2,252	564	19
1989	4,412	3,597	691	20
1990	3,072	2,271	1,032	17
1991	3,498	2,495	794	12
1992	3,736	2,345	827	26

¹ 1972-1978: total and agricultural exports adjusted for grain and oilseed transshipments through Canada, West Germany, Belgium, and the Netherlands. 1979-1992: total and agricultural exports adjusted for grain and oilseed transshipments through Canada.

Sources: USDA; U.S. Department of Commerce.

Projected 1993/94 Grain Imports Will Not Make Up for Fall in Output

Continued hard currency constraints will limit the rise in projected 1993/94 FSU grain imports, despite an estimated reduction in grain production of about 11 million tons this year. With a projected decline in FSU grain output and estimated total grain use down only slightly, a drawdown in FSU grain stocks is projected, given the modest rise forecasted for imports. [Jaclyn Y. Shend, Sharon S. Sheffield, Christian J. Foster]

FSU grain production in 1993 is forecast at 174 million tons, down 11 million tons from 1992. The reasons for the lower forecast are reduced area seeded to winter grains last fall, mostly because of weather-related difficulties, and a projected grain yield in Kazakhstan below last year's record. While the projected increase in spring grain area will offset much of the decline in winter grain area, output from the lower-yielding spring grains is not expected to make up for the reduction in winter grain production.

With grain output projected down and continued drawdowns in livestock inventories, total feed use of grains is also forecast to fall. Along with tight feed supplies, price reform in the FSU is one of the reasons for the reduction of animal herds on farms. This follows the pattern exhibited in Eastern Europe, where price liberalization led to meat price increases and consumption declines.

Although grain output is projected down, any rise in import demand will be limited by financial constraints. Since 1991, hard currency constraints have become a critical factor determining FSU grain imports. Since then, nearly all FSU grain purchases have been through credit, barter, or other aid arrangements. The volume of grain imports depends heavily on the willingness of foreign suppliers to continue these credits and food aid. The difficult balance-of-payment situations in all countries of the FSU do not bode well for grain imports other than those furnished through government aid and credit packages.

A number of uncertainties could change the outlook for grain imports. In the short run, harvest prospects could change significantly based on weather fluctuations. Moreover, the amount of grain procured by the State, historically a more important determinant of import demand than production, may continue to fall, because most farms would rather market it outside the State system. Holding grain is also relatively more attractive as currency rapidly loses value, falling at 20-30 percent per month during the first quarter of 1993. In the longer run, the accumulated impact of reduced inputs and investment in agriculture may have a more significant effect on yields, though the marginal productivity of input use in the past was believed by many Western economists to be relatively small.

Most uncertain of all are the prospects for currency stabilization and continued economic reform in the FSU. Ruble stabilization, further restructuring of the livestock sector, and the development of free markets for grain in Russia could significantly reduce import demand for grain. Currency stabilization and the development of grain markets would increase incentives to produce and sell grain, as long as production remained profitable. Smaller livestock herds reduce demand for feed grains. On the other hand, a slowdown in livestock sector restructuring caused by the re-introduction of State subsidies, continued inflation, and retention of the State procurement system could keep demand high for grain, input productivity low, and growth minimal for non-State marketing of grain.

FSU Grain Production Rebounds in 1992

In May 1993, USDA projected total 1993 grain output for the FSU at 174 million metric tons, about 6 percent lower than in 1992, largely the result of reduced winter grain area in western regions and an estimated lower crop in **Kazakhstan**, following its near record 1992 harvest (tables 40 and 41).⁶¹ Grain production in 1992 totaled about 185 million tons, an increase of 20 percent above the 1991 harvest, and just under the 1986-90 annual average of 186 million tons. **Russia, Ukraine, and Kazakhstan** account for about 90 percent of total FSU grain output (figure 11).

The total grain yield in 1993 is projected to be somewhat lower than last year, mainly because winter grains, which are higher yielding than spring grains, were seeded on a smaller area. Largely due to more favorable weather conditions, the average total grain yield in 1992 was about 20 percent higher than 1991 yield, which suffered from drought in many areas.

Total 1993 grain area for FSU was estimated at about 99 million hectares, slightly lower than in the previous year. The 1993 area seeded to winter grains was about 10 percent smaller than a year earlier. Autumn plowing for spring seeding was down more than 20 percent, and as of April 26, 1993, spring seeding was lagging behind last year. From 1980 through 1992, FSU total grain area declined at least 1 million hectares each year, largely as a result of farms switching away from grains to forage crops and fallow. In 1992, however, as production of grain crops became more profitable, the total

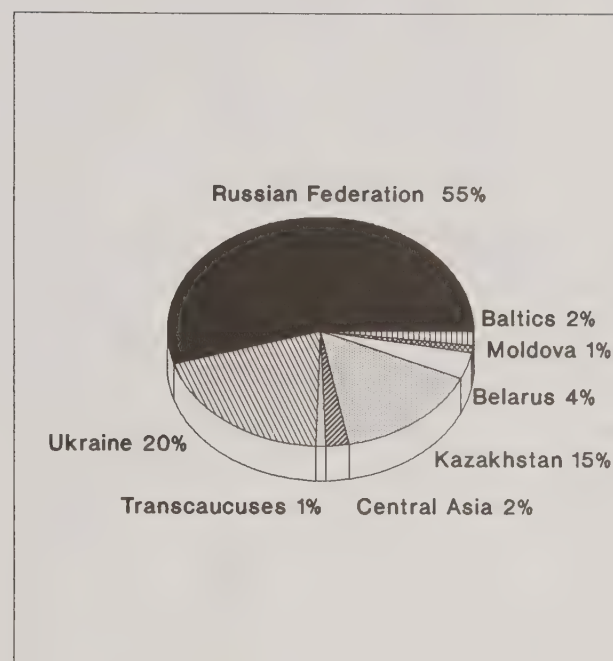
Table 40—Area, yield, and production of selected grains (cleanweight), FSU¹

Year	Wheat	Barley	Rye	Oats	Millet	Corn	Coarse grains	Rice ²	Total grain
Area <i>Million hectares</i>									
1980	61.5	31.6	8.6	11.8	2.9	3.0	57.9	0.7	120.1
1981	59.2	31.8	7.6	12.5	2.7	3.5	58.0	0.6	117.8
1982	57.3	29.7	9.8	11.5	2.8	4.2	58.0	0.5	115.8
1983	50.8	31.7	10.3	12.4	2.9	3.9	61.2	0.7	112.7
1984	51.1	30.4	9.4	12.8	2.6	3.9	59.2	0.7	111.0
1985	50.3	29.1	9.5	12.6	2.8	4.5	58.5	0.7	109.5
1986	48.7	30.0	8.7	13.2	2.5	4.2	58.6	0.6	107.9
1987	46.7	30.7	9.7	11.8	2.8	4.6	59.5	0.7	106.9
1988	48.1	29.7	10.1	10.9	2.6	4.4	57.8	0.7	106.6
1989	47.6	27.6	10.7	10.8	2.8	4.1	56.0	0.7	104.4
1990	48.2	26.2	10.6	10.6	2.9	2.9	53.1	0.6	101.9
1991	45.9	28.7	8.6	10.6	3.0	3.0	53.9	0.6	100.4
1992	45.7	26.7	10.9	10.4	3.0	2.5	53.4	0.6	99.8
1993	43.9	28.8	8.9	10.7	2.9	2.9	54.2	0.7	98.8
Yield <i>Tons per hectare</i>									
1980	1.49	1.26	1.07	1.15	0.44	3.18	1.27	2.86	1.29
1981	1.28	1.04	1.15	0.87	0.61	2.65	1.09	2.50	1.20
1982	1.38	1.33	1.36	1.27	0.81	3.53	1.46	2.80	1.42
1983	1.42	1.44	1.52	1.32	0.75	3.41	1.52	2.14	1.48
1984	1.26	1.26	1.35	1.30	0.66	3.47	1.40	2.29	1.34
1985	1.44	1.47	1.49	1.42	0.95	3.21	1.57	2.14	1.51
1986	1.76	1.65	1.59	1.44	0.89	2.95	1.65	2.52	1.71
1987	1.67	1.74	1.65	1.35	1.31	3.24	1.75	2.41	1.71
1988	1.64	1.36	1.67	1.21	1.11	3.62	1.55	2.52	1.60
1989	1.83	1.62	1.70	1.39	1.35	3.69	1.73	2.29	1.78
1990	2.11	2.01	2.10	1.47	1.10	3.46	1.95	2.29	2.03
1991	1.57	1.45	1.71	1.21	0.53	3.28	1.49	2.16	1.53
1992	1.94	1.98	1.72	1.40	0.72	2.67	1.77	2.15	1.85
1993	1.79	1.79	1.72	1.34	0.93	3.54	1.73	2.26	1.76
Production <i>Million tons</i>									
1980	91.5	39.8	9.2	13.5	1.3	9.5	73.3	2.0	166.8
1981	75.8	33.0	8.7	10.8	1.7	9.4	63.5	1.5	140.8
1982	78.9	39.5	13.4	14.6	2.3	14.7	84.5	1.4	164.8
1983	72.2	45.7	15.7	16.4	2.2	13.3	93.2	1.5	166.9
1984	64.2	38.4	12.7	16.7	1.7	13.6	83.1	1.6	148.9
1985	72.6	42.6	14.2	17.8	2.7	14.4	91.7	1.5	165.8
1986	86.0	49.5	13.8	18.9	2.2	12.5	96.8	1.6	184.3
1987	77.3	53.3	16.1	15.9	3.6	14.8	103.8	1.6	182.7
1988	78.8	40.5	18.9	13.2	2.9	16.0	89.6	1.7	170.1
1989	87.2	44.9	18.3	15.0	3.7	15.2	97.1	1.5	185.8
1990	101.9	52.5	22.2	15.5	3.2	9.9	103.3	1.4	206.6
1991	72.0	41.5	14.6	12.9	1.6	9.8	80.4	1.3	153.7
1992	88.6	52.8	18.6	14.5	2.1	6.5	94.6	1.4	184.6
1993	78.5	51.5	15.2	14.4	2.7	10.2	94.0	1.5	174.0

¹ Official USDA data; 1992 is preliminary; 1993 is projected.

² Milled rice.

Figure 11
FSU Total Grain Output, 1992



Source: Statkom SNG.

FSU grain area remained relatively unchanged at around 100 million hectares (figure 12).

Total FSU wheat production in 1993 is projected to be 78.5 million tons, down more than 10 percent from the preceding year because of reduced winter wheat planting. USDA estimated 1992 wheat production at about 89 million tons, an increase of more than 20 percent from 1991, and about 3 percent higher than the 1986-90 5-year average.

The overall 1992 wheat yield was considerably better than in the previous year due to the record yield of spring wheat, mainly grown in **Kazakhstan**. The winter wheat yield was somewhat lower than the 1986-90 annual average.

In 1992, FSU total wheat area declined considerably less than in the previous year. In recent years, the area for higher-yielding winter wheat has been increasing, while spring wheat area has been steadily falling (figure 13). Spring wheat is mostly grown in West Siberia, the Urals, and the Volga Valley of the **Russian Federation**, and in **Kazakhstan**. As a result of extreme weather fluctuations from year to year and poor soils in these regions, the marginal costs for growing wheat are higher, explaining the decline in area.

USDA estimates total FSU coarse grain output in 1993 at about 94 million tons, slightly lower than last year.⁶² Despite the fall in total coarse grain area in 1992, output of coarse grains increased almost 20 percent from the previous year, due to improved yields following the poor 1991 harvest. Corn production, however, fell for the fourth consecutive year. Consequently, it was reported that corn seed supplies were insufficient for planned seeding this spring.⁶³

Table 41 — Area, yield, and production of selected grains (cleanweight), FSU¹

Year	Wheat			Rye	Corn	Barley	Oats	Millet	Buck – wheat	Rice	Pulses	Total grain
	Winter	Spring	Total									
Area												
1,000 hectares												
1981 – 85 avg.	18,709	35,023	53,732	9,331	4,000	30,530	12,352	2,769	1,731	658	6,026	121,386
1986 – 90 avg.	18,008	29,861	47,869	9,979	4,039	28,836	11,443	2,710	1,691	644	6,212	113,679
1986	16,632	32,096	48,728	8,741	4,223	29,964	13,173	2,485	1,584	621	6,723	116,477
1987	15,319	31,365	46,684	9,725	4,573	30,654	11,790	2,763	1,626	657	6,424	115,212
1988	18,313	29,745	48,058	10,115	4,431	29,732	10,946	2,615	1,664	671	6,430	114,912
1989	19,039	28,637	47,676	10,745	4,120	27,639	10,751	2,765	1,711	656	5,953	112,276
1990	20,735	27,462	48,197	10,569	2,850	26,193	10,555	2,923	1,869	613	5,528	109,518
1991 ²	19,600	26,300	45,900	8,600	3,000	28,600	10,600	3,000	2,400	600	5,000	108,000
1992 ³	na	na	na	na	na	na	na	na	na	na	na	107,400
Yield												
Tons per hectare												
1981 – 85 avg.	2.18	0.94	1.37	1.39	3.25	1.33	1.28	0.77	0.5	3.67	1.15	1.38
1986 – 90 avg.	2.99	1.07	1.80	1.75	3.39	1.68	1.37	1.15	0.64	3.68	1.34	1.73
1986	2.67	1.32	1.77	1.59	2.95	1.65	1.43	0.89	0.55	3.87	1.04	1.66
1987	2.85	1.07	1.65	1.66	3.24	1.74	1.35	1.31	0.69	3.69	1.37	1.68
1988	2.83	0.91	1.64	1.68	3.61	1.37	1.21	1.11	0.53	3.87	1.23	1.57
1989	3.19	0.92	1.83	1.70	3.71	1.62	1.39	1.35	0.66	3.43	1.46	1.75
1990	3.41	1.14	2.11	2.10	3.46	2.01	1.47	1.10	0.75	3.53	1.62	1.99
1991 ²	2.71	0.72	1.57	1.70	3.27	1.45	1.21	0.53	0.51	3.33	1.02	1.49
1992 ³	na	na	na	na	na	na	na	na	na	na	na	1.82
Production												
1,000 tons												
1981 – 85 avg.	40,786	32,922	73,600	13,000	13,100	40,500	15,700	2,100	900	2,400	7,100	168,700
1986 – 90 avg.	54,256	32,100	86,357	17,433	13,705	48,155	15,717	3,140	1,093	2,369	8,286	196,547
1986	44,379	42,194	86,573	13,769	12,479	49,490	18,926	2,207	876	2,404	6,997	193,997
1987	43,668	33,663	77,331	16,084	14,828	53,342	15,882	3,622	1,126	2,428	8,822	193,848
1988	51,756	27,070	78,826	16,877	16,030	40,545	13,249	2,907	904	2,597	7,949	180,150
1989	60,781	26,381	87,162	18,284	15,305	44,859	14,978	3,739	1,143	2,252	8,710	196,712
1990	70,697	31,194	101,891	22,152	9,884	52,537	15,552	3,224	1,417	2,166	8,954	218,026
1991 ²	53,100	18,900	72,000	14,600	9,800	41,500	12,900	1,600	1,200	2,000	5,100	161,000
1992 ³	na	na	na	na	na	na	na	2,200	1,600	2,000	na	195,100

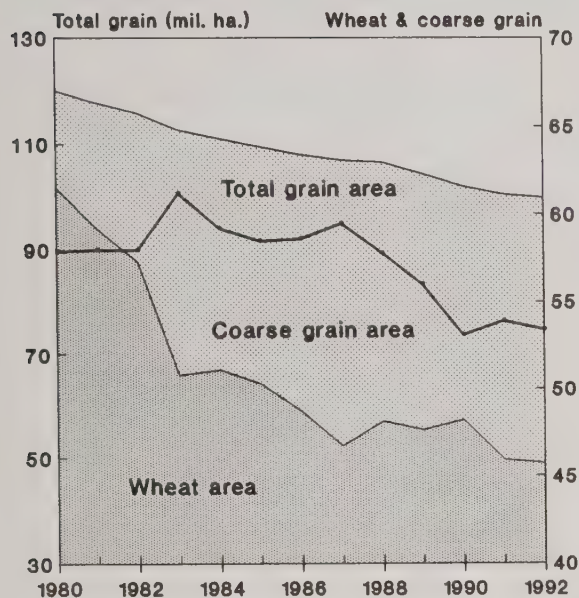
na = not available.

¹ Official Goskomstat data. ² Preliminary. ³ Estimates.

Sources: *Narodnoe khozyaistvo SSSR*, 1991; *Posevnye ploshchadi pod urazhay 1991 goda po soyuznym respublikam*, 1991.

Figure 12

Total Grain, Wheat, and Coarse Grain Area, FSU

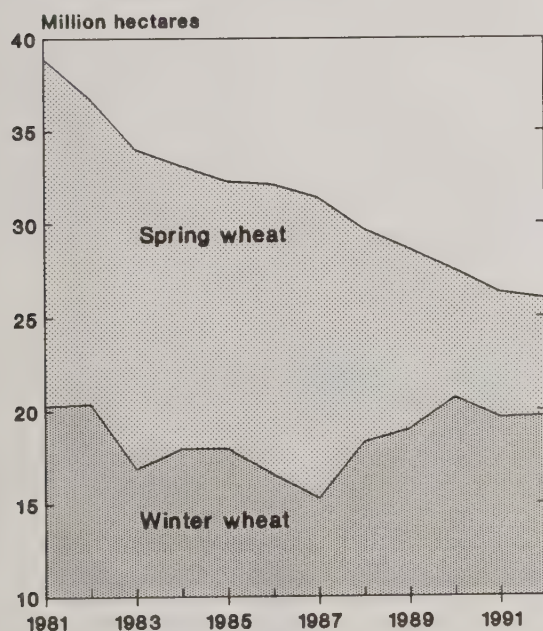


1992 preliminary.

Sources: Statkom SNG; USDA.

Figure 13

FSU Spring and Winter Wheat Area



1991 and 1992 are estimated.

Source: Statkom SNG.

Table 42—Area, yield, and production of total grain (cleanweight), FSU republics and the Baltics¹

Republic	1987	1988	1989	1990	1991	1992 ²
Area 1,000 hectares						
Russian Fed	61,456	60,744	59,924	58,147	56,923	57,100
Ukraine	13,522	13,951	13,421	12,784	12,873	12,100
Belarus	2,442	2,403	2,454	2,454	2,431	2,520
Moldova	564	711	732	668	744	733
Kazakhstan	24,083	23,837	23,335	22,915	22,226	21,960
Uzbekistan	992	1,028	861	983	1,056	1,180
Kyrgyzstan	544	544	527	534	553	561
Tajikistan	221	231	176	218	220	215
Turkmenistan	187	195	181	185	237	352
Armenia	129	128	125	135	147	141
Azerbaijan	450	525	385	576	639	572
Georgia	269	272	224	271	277	257
Lithuania	972	972	999	993	1,048	1,055
Latvia	653	625	655	661	631	650
Estonia	357	379	388	387	407	400
Yield Tons per hectare						
Russian Fed	1.52	1.46	1.65	1.90	1.50	1.78
Ukraine	3.25	3.02	3.56	3.70	2.82	2.90
Belarus	3.00	2.30	2.83	2.75	2.47	2.78
Moldova	3.17	3.89	4.33	3.65	4.02	2.71
Kazakhstan	1.05	0.86	0.79	1.22	0.52	1.33
Uzbekistan	1.56	1.81	1.59	1.73	1.62	1.72
Kyrgyzstan	3.34	3.06	3.02	2.80	2.48	2.72
Tajikistan	1.45	1.48	1.53	1.29	1.22	1.42
Turkmenistan	1.63	1.99	1.99	2.33	1.97	2.16
Armenia	1.88	2.59	1.35	1.81	2.00	1.98
Azerbaijan	2.35	2.54	2.14	2.34	2.09	2.26
Georgia	2.50	2.63	2.24	2.56	1.83	1.72
Lithuania	2.78	2.48	3.00	3.06	2.95	1.77
Latvia	2.36	1.76	2.36	2.36	1.92	1.37
Estonia	2.34	1.16	2.44	2.41	2.26	1.43
Production 1,000 tons						
Russian Fed	93,263	88,729	98,925	110,567	85,581	101,500
Ukraine	43,984	42,072	47,734	47,256	36,279	35,150
Belarus	7,321	5,515	6,945	6,745	5,996	7,010
Moldova	1,788	2,769	3,168	2,437	2,993	1,990
Kazakhstan	25,254	20,451	18,388	27,908	11,589	29,216
Uzbekistan	1,547	1,863	1,371	1,703	1,708	2,032
Kyrgyzstan	1,812	1,664	1,593	1,496	1,369	1,526
Tajikistan	321	342	270	282	269	305
Turkmenistan	305	388	360	431	466	760
Armenia	243	331	169	245	295	280
Azerbaijan	1,058	1,335	822	1,346	1,334	1,295
Georgia	630	676	464	657	506	443
Lithuania	2,707	2,413	2,993	3,038	3,091	1,870
Latvia	1,543	1,099	1,546	1,532	1,278	890
Estonia	878	439	948	933	919	570

¹ Official USDA data for total grain include: wheat, barley, rye, oats, millet, corn, and milled rice.

² Preliminary.

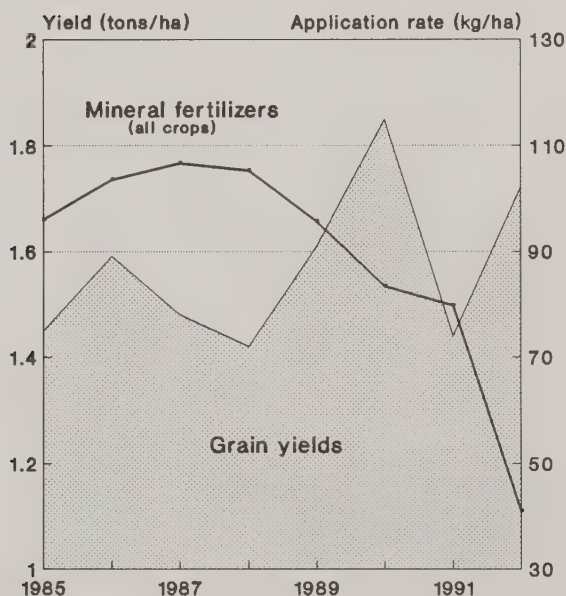
Russian Grain Area in 1992 Breaks the Downward Trend

The 1992 grain output in the **Russian Federation** totaled about 101.5 million tons (USDA estimate which excludes pulses and miscellaneous grains), an increase of 20 percent from the 1991 harvest, and slightly higher than the 1986-90 annual average (tables 42 and 43). The increase resulted mainly because of good weather that improved yields.

The early outlook for 1993 is favorable because of good weather as of mid-May. Winterkill was less than 10 percent, compared to the 1986-90 average of 12 percent. Grain yields may be affected by a reduction in input use. Farms have reported problems in purchasing fuel, spare parts for machinery, mineral fertilizers, and pesticides. But similar problems have been reported in previous years and did not have large effects on grain yields (figure 14). This could be due to low marginal productivity of inputs.

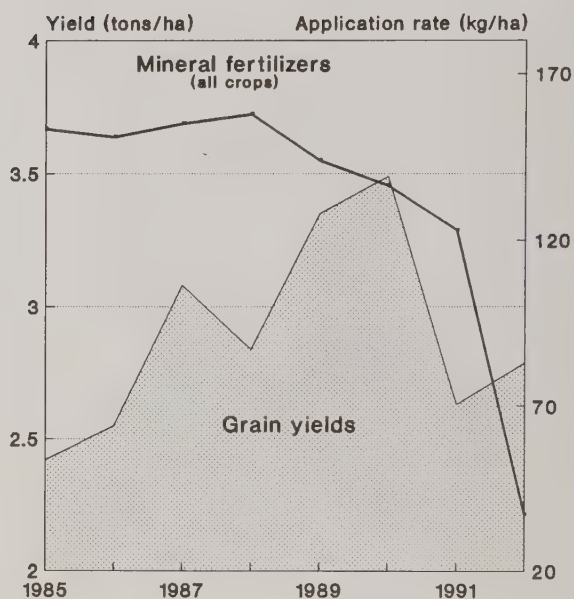
According to the Russian Agricultural Commission, the 1993 total grain area in the Russian Federation may be slightly larger than in 1992, following a small increase from 1991.⁶⁴ Increases in grain area run counter to the downward trend observed since 1978, possibly the result of improvements in grain profitability. In 1992, profitability of grain crops increased by about 60 percent from the previous year, as grain procurement prices rose faster than most input costs.⁶⁵ The 1993 area seeded to higher yielding winter grains, however, was down more than 10 percent from 1992. The late-fall harvest and prolonged rains in 1992 delayed and cutback winter seeding, particularly in the North Caucasus, the Urals, and West Siberia. Also fall plowing was 20 percent lower in 1992 than in the year before, and as of May 10, 1993, spring seeding was running about 10 percent behind last year.

Figure 14
Fertilizer Application & Grain Yields,
Russian Federation



1992 estimated.
Source: Goskomstat Rossii.

Figure 15
Fertilizer Application & Grain Yields,
Ukraine



1992 estimated.
Source: Minstat Ukraini.

Ukraine Output Down Second Year

In **Ukraine**, the 1992 total grain production of 35.2 million tons (USDA estimate), was slightly lower than the poor 1991 crop, and considerably below the 1986-90 annual average of 44.1 million tons. In 1991 and 1992, grain production in Ukraine was down about 10 percent from the 1986-90 average, mainly due to reduced yields. The yields may have been affected by decreased use of inputs, which were perhaps less available in Ukraine than in Russia (figure 15). The 1992 corn yield was almost 25 percent below the 1986-90 average (table 44).

The 1992 area, the smallest since 1960, was 6 percent less than in 1991. This may be the result of decreased profitability of grain, which fell about 40 percent in Ukraine in 1991.⁶⁶ Fall seeding of winter grains for the 1993 harvest was affected by drought and was down about 10 percent. As of April 26, 1993, spring planting was about 25 percent below a year earlier.

Kazakhstan Not Likely To Match 1992 Crop

Total 1992 grain production in **Kazakhstan** was about 29.2 million tons (USDA estimate), which was 2.5-times greater than the 1991 harvest, and about 25 percent larger than the 1986-90 average (table 45). Good weather contributed to Kazakhstan's 1992 record grain yield, following the drought-damaged 1991 harvest.

According to Kazakhstan's State Committee for Statistics and Analysis, the total 1993 grain area could be down somewhat from 1992, as high-cost marginal areas are taken out of production. Total grain area has been declining since the mid-1980s, and some scientists in Kazakhstan expect this trend to

Table 43—Area, yield, and production of selected grains (cleanweight), Russian Federation¹

Year	Wheat			Rye	Corn	Barley	Oats	Millet	Buck – wheat	Rice	Pulses	Total grain
	Winter	Spring	Total									
Area												
1,000 hectares												
1976–80 avg.	9,829	23,711	33,540	5,505	645	20,250	10,225	1,764	1,091	320	3,356	76,752
1981–85 avg.	8,750	19,550	28,300	6,850	940	17,241	10,575	1,640	1,145	336	3,802	70,910
1986–90 avg.	8,754	16,001	24,555	7,522	1,131	15,405	9,834	1,710	1,124	301	3,960	65,644
1986	9,174	17,432	25,606	6,431	672	16,157	11,389	1,495	1,033	306	4,298	67,501
1987	6,880	17,094	23,974	7,300	1,424	16,621	10,063	1,733	1,070	306	4,071	66,686
1988	8,878	15,697	24,575	7,692	1,260	15,866	9,407	1,639	1,111	306	4,080	66,025
1989	9,106	15,270	24,376	8,200	1,428	14,659	9,210	1,749	1,127	301	3,793	64,938
1990	9,731	14,513	24,244	7,989	869	13,723	9,100	1,936	1,278	287	3,556	63,068
1991	9,191	13,961	23,152	6,461	733	15,281	9,032	1,997	1,646	267	3,163	61,783
1992	na	na	na	na	na	na	na	1,869	na	265	na	62,020
Yield												
Tons per hectare												
1976–80 avg.	2.16	1.22	1.51	1.11	2.78	1.41	1.22	0.63	0.40	3.45	1.11	1.38
1981–85 avg.	2.01	1.10	1.37	1.30	2.90	1.26	1.23	0.81	0.41	3.37	0.99	1.30
1986–90 avg.	2.82	1.19	1.77	1.64	2.87	1.58	1.28	1.19	0.56	3.49	1.13	1.59
1986	2.55	1.52	1.85	1.50	2.54	1.59	1.38	0.91	0.50	3.82	0.99	1.59
1987	2.51	1.15	1.54	1.52	2.70	1.57	1.22	1.37	0.59	3.49	1.04	1.48
1988	2.68	1.03	1.62	1.62	3.02	1.23	1.13	1.07	0.42	3.75	1.00	1.42
1989	2.97	1.11	1.81	1.53	3.26	1.51	1.3	1.62	0.66	3.28	1.24	1.61
1990	3.37	1.16	2.05	2.05	2.82	1.98	1.35	1.00	0.62	3.13	1.38	1.85
1991	2.81	0.94	1.68	1.64	2.68	1.45	1.15	0.52	0.41	2.90	0.79	1.44
1992	na	na	na	na	na	na	na	0.80	na	2.85	na	1.72
Production												
1,000 tons												
1976–80 avg.	21,500	29,000	50,500	6,200	1,800	28,600	12,500	1,100	439	1,106	3,700	10,600
1981–85 avg.	17,500	21,100	38,600	9,000	2,800	21,700	13,000	1,300	474	1,132	3,800	92,000
1986–90 avg.	24,335	19,206	43,553	12,448	3,296	23,909	12,576	2,059	643	1,054	4,433	104,261
1986	20,863	26,571	47,434	9,677	1,708	25,589	15,684	1,362	525	1,169	4,246	107,467
1987	17,272	19,596	36,868	11,057	3,844	25,101	12,289	2,385	644	1,072	4,224	98,588
1988	23,740	16,124	39,864	12,507	3,814	19,418	10,604	1,754	479	1,146	4,051	93,729
1989	27,090	16,914	44,004	12,581	4,663	22,201	11,977	2,846	758	986	4,720	104,845
1990	32,711	16,825	49,596	16,416	2,451	27,235	12,326	1,946	809	896	4,923	116,676
1991	25,800	13,100	38,899	10,624	1,969	22,174	10,372	1,040	688	773	2,506	89,094
1992	na	na	46,000	13,900	na	na	na	1,500	1,000	755	na	106,830

na = not available.

¹ Official Goskomstat data.

Sources: *Narodnoe khozyaistvo Rossiiskoy Federatsii*, 1991 and 1992.

Table 44—Area, yield, and production of selected grains (cleanweight), Ukraine¹

Year	Wheat			Rye	Corn	Barley	Oats	Millet	Buck— wheat	Rice	Pulses	Total grain
	Winter	Spring	Total									
Area												
1,000 hectares												
1976–80 avg.	7,238	26	7,264	723	1,500	4,330	766	332	322	38	1,195	16,510
1981–85 avg.	6,824	21	6,844	705	2,161	3,496	657	327	345	35	1,543	16,172
1986–90 avg.	6,407	11	6,419	572	2,124	3,548	596	274	343	33	1,567	15,525
1986	5,715	13	5,728	577	2,781	4,044	691	294	335	35	1,681	16,214
1987	5,346	13	5,359	623	2,423	4,077	653	352	341	35	1,616	15,571
1988	6,451	12	6,463	597	2,328	3,658	595	277	347	35	1,617	15,962
1989	6,957	10	6,966	542	1,856	3,233	549	241	342	33	1,496	15,294
1990	7,568	9	7,577	519	1,234	2,728	492	205	350	28	1,424	14,583
1991	7,013	10	7,023	491	1,462	3,190	496	188	399	23	1,376	14,671
1992	na	na	6,308	499	1,137	3,425	492	192	na	24	1,276	13,815
Yield												
Tons per hectare												
1976–80 avg.	2.91	2.22	2.92	1.68	2.90	2.35	1.84	1.31	0.86	n/a	1.85	2.51
1981–85 avg.	1.64	1.93	2.64	1.59	2.98	2.17	1.75	1.33	0.83	4.24	1.60	2.34
1986–90 avg.	3.64	2.73	3.64	1.99	3.52	2.87	2.34	1.78	0.95	4.72	1.85	3.06
1986	3.21	2.61	3.21	1.74	2.87	2.47	1.93	1.51	0.77	5.30	1.07	2.55
1987	3.67	3.02	3.67	2.21	3.42	2.99	2.54	1.94	1.11	4.88	2.10	3.08
1988	3.36	2.05	3.36	1.17	3.70	2.39	2.07	2.06	0.81	4.64	1.78	2.84
1989	3.93	2.98	3.93	2.39	3.78	3.12	2.53	1.78	0.91	4.61	2.04	3.35
1990	4.01	2.97	4.01	2.43	3.83	3.36	2.65	1.63	1.16	4.19	2.28	3.49
1991	3.01	2.16	3.01	2.00	3.24	2.52	1.90	1.76	0.90	4.38	1.42	2.63
1992	na	na	3.09	2.32	2.51	2.95	2.53	1.18	na	3.88	2.34	2.79
Production												
1,000 tons												
1976–80 avg.	na	na	21,205	1,205	4,353	10,194	1,418	462	276	na	2,231	41,526
1981–85 avg.	18,056	39	18,095	1,119	6,510	7,562	1,139	443	288	148	2,505	37,881
1986–90 avg.	23,479	31	23,510	1,197	7,344	10,035	1,384	498	335	158	2,895	47,415
1986	18,377	34	18,411	1,000	8,011	9,973	1,336	454	260	185	1,819	41,506
1987	19,615	40	19,655	1,373	8,308	12,190	1,658	688	386	171	3,423	47,978
1988	21,684	25	21,709	1,055	8,638	8,751	1,236	576	291	163	2,894	45,369
1989	27,371	29	27,400	1,297	7,026	10,090	1,387	434	317	153	3,072	51,212
1990	30,348	26	30,374	1,259	4,737	9,169	1,303	338	420	117	3,266	51,009
1991	21,133	22	21,155	982	4,747	8,047	945	338	373	102	1,965	38,674
1992	na	na	19,507	1,158	2,851	10,106	1,246	226	na	93	2,986	38,537

na = not available.

¹ Official Goskomstat data.

Sources: *Narodnoe khozyaistvo Ukrainy*, 1991 and 1992.

Table 45—Area, yield, and production of selected grains (cleanweight), Kazakhstan¹

Year	Wheat			Rye	Corn	Barley	Oats	Millet	Buck – wheat	Rice	Pulses	Total grain
	Winter	Spring	Total									
Area												
1,000 hectares												
1981 – 85 avg.	1,089	15,246	16,335	354	123	6,737	446	802	198	137	169	25,352
1986 – 90 avg.	1,086	13,764	14,850	598	128	6,819	415	725	193	131	172	24,109
1986	1,062	14,538	15,600	432	119	6,727	450	692	177	129	164	24,563
1987	1,155	14,156	16,311	489	119	6,871	483	677	179	133	184	24,525
1988	915	13,961	14,876	577	137	7,063	350	699	177	135	183	24,290
1989	1,097	13,293	14,390	723	134	6,773	408	774	215	133	172	23,812
1990	1,199	12,871	14,070	769	129	6,660	382	781	218	124	159	23,356
1991	1,206	12,250	13,456	562	121	6,614	512	847	318	118	152	22,753
1992	1,220	12,657	13,877	623	126	5,718	456	1,003	447	121	140	22,511
Yield												
Tons per hectare												
1981 – 85 avg.	0.92	0.75	0.76	0.60	4.14	0.79	0.97	0.47	0.40	4.38	0.62	0.79
1986 – 90 avg.	1.53	0.92	0.97	0.92	3.88	0.99	1.10	0.80	0.51	4.51	0.80	1.00
1986	1.25	1.06	1.07	0.85	4.25	1.06	1.37	0.56	0.42	4.55	0.91	1.08
1987	1.95	0.98	1.05	0.69	4.03	1.00	0.95	0.82	0.40	4.54	0.79	1.05
1988	1.48	0.77	0.82	0.95	4.09	0.83	0.98	0.82	0.66	4.65	0.72	0.86
1989	1.32	0.70	0.75	1.03	3.58	0.78	0.61	0.59	0.25	4.16	0.62	0.79
1990	1.64	1.11	1.15	1.09	3.44	1.28	1.60	1.20	0.80	4.65	0.97	1.22
1991	1.02	0.46	0.51	0.85	2.72	0.47	0.45	0.28	0.43	4.40	0.43	0.53
1992	1.43	1.31	1.32	0.85	2.91	1.49	1.59	0.45	0.51	3.86	0.88	1.32
Production												
1,000 tons												
1981 – 85 avg.	1,018	11,380	12,398	217	503	5,364	420	374	80	597	105	20,082
1986 – 90 avg.	1,671	12,728	14,399	568	493	6,737	456	583	98	590	138	24,108
1986	1,328	15,415	16,743	369	505	7,095	616	391	74	586	150	26,562
1987	2,255	13,853	16,108	338	477	6,929	459	549	72	606	145	25,721
1988	1,354	10,808	12,162	548	561	5,850	345	577	117	626	132	20,970
1989	1,451	9,332	10,783	745	479	5,310	251	459	53	555	107	18,797
1990	1,966	14,231	16,197	839	442	8,500	610	940	174	579	154	28,488
1991	1,230	5,659	6,889	480	330	3,085	231	235	136	521	66	11,992
1992	1,743	16,542	18,285	525	368	8,511	727	447	230	230	123	29,772

¹ Official Goskomstat data.

Sources: *Statisticheskii ezhegodnik Kazakhstana*, 1991 and 1992.

Table 46—Area, yield, and production of total grain (cleanweight), FSU republics (Goskomstat) ¹

Republic	Average 1981–85	Average 1986–90	1986	1987	1988	1989	1990	1991	1992 ²
Area 1,000 hectares									
Russian Federation	70,910	65,641	67,501	66,686	66,014	64,938	63,068	61,783	62,020
Ukraine	16,172	15,525	16,214	15,571	15,962	15,294	14,583	14,671	13,815
Belarus	2,907	2,709	2,793	2,736	2,678	2,692	2,645	2,606	2,700 ³
Moldova	759	746	707	653	804	818	746	837	820 ³
Kazakhstan	25,352	24,109	24,563	24,525	24,290	23,812	23,356	22,753	22,511
Uzbekistan	1,143	929	700	1,004	1,049	882	1,008	1,080	1,200 ³
Kyrgyzstan	533	540	536	550	552	526	538	557	565 ³
Tajikistan	211	208	151	229	241	187	230	232	225 ³
Turkmenistan	139	184	164	189	198	180	187	240	360 ³
Armenia	140	134	133	133	133	131	138	152	150 ³
Azerbaijan	496	478	412	461	539	394	583	651	600 ³
Georgia	290	260	267	269	272	221	270	289	270 ³
Lithuania	1,198	1,128	1,192	1,120	1,121	1,125	1,084	1,087	1,135 ³
Latvia	719	691	736	697	656	681	686	657	660 ³
Estonia	418	396	409	389	392	396	396	418	400 ³
Total FSU	121,386	113,679	116,477	115,212	114,912	112,276	109,518	108,013	107,431 ³
Yield Tons per hectare									
Russian Federation	1.30	1.59	1.59	1.48	1.42	1.61	1.85	1.44	1.72
Ukraine	2.34	3.06	2.55	3.08	2.84	3.35	3.49	2.63	2.79
Belarus	1.86	2.52	2.17	2.85	2.20	2.74	2.66	2.42	2.67 ³
Moldova	3.23	3.39	2.81	2.99	3.69	4.05	3.40	3.70	2.44 ³
Kazakhstan	0.79	1.00	1.08	1.05	0.86	0.79	1.22	0.53	1.32
Uzbekistan	2.02	1.81	1.69	1.73	1.98	1.78	1.88	1.73	1.85 ³
Kyrgyzstan	2.40	3.03	2.93	3.32	3.04	3.04	2.80	2.47	2.65 ³
Tajikistan	1.44	1.48	1.55	1.49	1.49	1.54	1.31	1.23	1.33 ³
Turkmenistan	2.17	2.01	1.78	1.71	2.06	2.12	2.36	2.15	2.16 ³
Armenia	1.84	2.02	2.33	1.92	2.63	1.37	1.84	1.99	2.01 ³
Azerbaijan	2.39	2.36	2.49	2.32	2.52	2.11	2.34	2.07	2.19 ³
Georgia	2.01	2.37	2.32	2.38	2.54	2.14	2.47	2.04	1.67 ³
Lithuania	2.07	2.67	2.31	2.73	2.40	2.91	3.01	3.08	1.96 ³
Latvia	1.77	2.17	2.05	2.34	1.74	2.35	2.36	2.03	1.67 ³
Estonia	2.08	2.11	2.23	2.33	1.14	2.44	2.41	2.25	1.49 ³
Total FSU	1.38	1.73	1.66	1.68	1.57	1.75	1.99	1.49	1.82 ³
Production 1,000 tons									
Russian Federation	91,961	104,261	107,467	98,588	93,729	104,846	116,676	89,094	106,830
Ukraine	37,881	47,415	41,506	47,978	45,369	51,212	51,009	38,674	38,537
Belarus	5,403	6,836	6,050	7,804	5,906	7,384	7,035	6,296	7,222
Moldova	2,453	2,556	1,994	1,952	2,970	3,323	2,539	3,106	2,000
Kazakhstan	20,082	24,108	26,562	25,721	20,970	18,797	28,488	11,992	29,772
Uzbekistan	2,380	1,692	1,186	1,738	2,083	1,555	1,899	1,908	2,219
Kyrgyzstan	1,289	1,635	1,568	1,827	1,676	1,601	1,503	1,374	1,500
Tajikistan	309	309	238	345	365	293	303	286	300
Turkmenistan	303	353	293	234	408	379	449	516	776
Armenia	258	270	311	255	349	180	254	304	301
Azerbaijan	1,189	1,130	1,024	1,073	1,356	832	1,364	1,346	1,312
Georgia	584	619	619	644	692	475	666	510	450 ³
Lithuania	2,480	3,009	2,756	3,063	2,688	3,272	3,265	3,348	2,225
Latvia	1,277	1,500	1,508	1,630	1,142	1,597	1,622	1,336	1,100
Estonia	871	838	915	906	447	967	954	939	594
Total FSU	168,720	196,547	193,997	193,848	180,150	196,712	218,026	161,029	195,100 ³

¹ Official Goskomstat data include: wheat, rye, corn, barley, oats, millet, buckwheat, unmilled rice, and pulses. ² Preliminary. ³ Estimate.
Sources: *Narodnoe khozyaistvo*, 1990; *Strany—chleny SNG statichiskii ezhegodnik*, 1992; Statkom SNG.

continue until low-yielding land is removed from crop rotations.⁶⁷

Belarus's 1992 grain output was about 7 million tons, an increase of 15 percent from 1991, and about 6 percent higher than the 1986-90 average (table 46). Although Belarus was among the regions in the European portion of the FSU afflicted by an early-summer drought that threatened to substantially reduce the grain harvest, 1992 grain yields were higher than in 1991.

In **Central Asia**, 1992 grain production increased more than 15 percent from 1991, and nearly 20 percent from the 1986-90 annual average, mainly due to more area and better yields. The republics of Central Asia are aiming to increase grain self-sufficiency in order to reduce dependence on imports by using land formerly seeded to cotton for grain crops. For example, **Uzbekistan** has stated it hopes to harvest 3 million tons of grain in 1993, more than 35 percent above the 1992 bumper crop, by substantially expanding grain area.⁶⁸

The government of **Moldova** plans to provide the republic's agrarian sector with inputs, which would reportedly enable Moldova to produce about 3 million tons of grain in 1993 compared to 2 million tons in 1992.⁶⁹ A severe drought cut grain output in Moldova in 1992 about one-third from the 1991 harvest of 3.1 million tons.

In the **Transcaucasus**, grain production for 1992 was estimated only slightly lower than a year earlier, despite political unrest in the region. For 1993, in **Georgia and Armenia**, the governments have adopted programs to increase grain output by providing farmers with financial assistance.⁷⁰

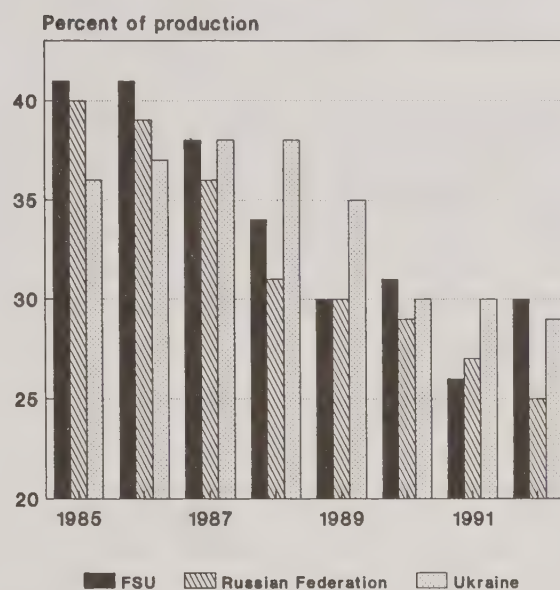
The 1992 grain crop in the **Baltics** was down more than 40 percent due to a severe drought. Because of dry soils, farmers experienced problems with winter planting, and 1993 winter grain area was cut by about one-half.

State Grain Procurement System Retained, but With Some Changes

Despite attempts in most republics to maintain procurements of the 1992 grain crop near past levels, farms remained very reluctant to sell large amounts of grain to the State. The main reason was, and continues to be, soaring inflation (about 2,600 percent in Russia in 1992) across the former USSR, and the consequent preference for bartering produce for needed goods and inputs rather than accepting rapidly eroding rubles from State sales. Numerous measures during 1992 and early-1993 to induce farms to turnover more of their grain have proved only marginally successful to date.

During 1993, the governments of the FSU republics are expected to partially liberalize their procurement systems, including plans to bring State procurement prices up to "internal market" prices. With much of the population and many agro-enterprises dependent on the State for their grain supplies, the procurement and allocation role of the State, although to a lesser degree, will likely continue at least for 1-2 years. However, while the system of State procurements will not likely be abolished in the near term, either federally or regionally

Figure 18
State Grain Procurements,
FSU, Russia, Ukraine



1992 preliminary.
Source: Statkom SNG.

operated, alternative channels of grain trade should continue to grow. Increasing significance of commodity exchanges and region-to-region and farm-to-enterprise supply relationships are expected this year.

As of late April 1993, FSU State procurement centers had purchased an estimated 58.5 million tons of 1992 grain, up over 16 million from the near-record low in 1991, but well below average levels of the mid-1980s (table 47). During the mid-1980s, FSU grain procurements averaged close to 70 million tons, with farms selling the State roughly 40 percent of their output (figure 16). However, around 1988 farms in the FSU began retaining more of their grain on farm, to use for livestock feed, seed, barter, compensating workers and suppliers, and sale through commodity exchanges and on contract to other regions. The share of 1992 grain sold to the State was about 30 percent, compared with only about 26 percent in 1991.

The lower procurements affect the operations of State flour milling and mixed-feed facilities in the FSU, which continue to rely almost completely on supplies from the State. During 1981-87, the annual-average volume of State grain supplies from domestic procurements and imports for State processing facilities was about 106 million tons. Table 48 shows the amount of grain in State channels was over 100 million in the late 1980s, and fell sharply to an annual average of only 85 million during the last 2 years.

Reduced State deliveries of grain to mixed-feed enterprises, due to lower procurements and reduced imports in 1992/93, resulted in sharply reduced output of mixed feeds for State livestock complexes in 1992. On the other hand, faced with low 1992 wheat procurements, the **Russian Government** at-

Table 47-- State procurement of grain, by type, FSU and major republics

	Wheat	Rye	Corn	Barley	Oats	Millet	Buckwheat	Rice	Pulses	Other	Total
FSU											
	<i>Million tons</i>										
1986	43.8	6.1	3.3	14.1	4.5	1.2	0.4	1.9	0.8	2.7	78.8
1987	35.2	7.2	4.0	15.3	2.7	2.1	0.6	1.9	1.5	2.8	73.3
1988	35.0	6.3	4.3	8.0	1.8	1.6	0.4	2.1	1.0	1.0	61.5
1989	34.1	6.4	3.2	6.6	1.6	2.2	0.5	1.7	1.1	1.7	59.1
1990	40.8	9.3	1.7	8.9	1.6	1.9	0.5	1.6	1.2	0.5	68.0
1991 ¹	24.1	na	na	na	na	na	na	na	na	na	42.0
1992 ¹	32.0	na	na	na	na	na	na	na	na	na	58.5
Russian Federation											
1986	22.6	4.5	0.5	7.3	4.0	0.7	0.2	0.9	0.6	0.8	42.1
1987	15.1	5.1	1.4	7.0	2.1	1.3	0.3	0.8	0.6	1.4	35.1
1988	16.3	4.5	1.2	3.1	1.4	0.8	0.2	0.9	0.4	0.4	29.2
1989	17.4	4.4	1.2	3.1	1.4	1.8	0.3	0.7	0.5	0.4	31.2
1990	18.4	7.2	0.5	3.8	1.2	1.1	0.3	0.6	0.6	0.3	34.0
1991	13.1	4.2	0.6	3.0	1.1	0.5	0.2	0.5	0.2	0.2	23.6
1992 ¹	13.0	na	na	na	na	na	na	na	na	na	27.0
Ukraine											
1986	8.2	0.2	1.7	2.4	0.2	0.3	1.0	0.2	0.2	1.7	15.2
1987	8.2	0.4	1.9	4.4	0.4	0.4	0.2	0.1	0.8	1.3	18.1
1988	10.5	0.3	2.2	2.3	0.3	0.4	0.1	0.1	0.6	0.5	17.3
1989	11.8	0.4	1.3	1.9	0.2	0.2	0.2	0.1	0.6	1.0	17.7
1990	11.5	0.4	0.7	1.6	0.2	0.2	0.2	0.1	0.6	--	15.4
1991	8.0	0.3	0.8	1.4	0.1	0.2	0.1	0.1	0.2	0.3	11.5
1992 ¹	7.0	na	na	na	na	na	na	na	na	na	11.0
Kazakhstan											
1986	11.7	0.2	0.4	3.2	0.2	0.3	--	0.5	--	--	16.7
1987	10.5	0.1	0.3	2.6	0.1	0.4	--	0.5	--	--	14.6
1988	6.5	0.3	0.3	1.6	--	0.4	0.1	0.5	--	--	9.8
1989	3.7	0.4	0.1	1.0	--	0.2	--	0.5	--	--	5.9
1990	9.8	0.5	0.2	2.9	0.1	0.6	0.1	0.5	--	--	14.8
1991	2.0	0.2	0.2	0.3	--	0.1	--	0.4	--	--	3.4
1992 ¹	11.0	na	na	na	na	na	na	na	na	na	16.0
Other republics											
1986	1.3	1.2	0.7	1.2	0.1	--	--	0.3	--	--	4.8
1987	1.4	1.6	0.4	1.3	0.1	--	0.1	0.5	0.1	--	5.5
1988	1.6	1.2	0.6	1.0	0.1	--	--	0.6	--	--	5.2
1989	1.2	1.2	0.6	0.6	--	--	--	0.4	--	--	4.3
1990	1.1	1.2	0.3	0.6	0.1	--	--	0.4	--	--	3.8
1991 ¹	1.0	na	na	na	na	na	na	na	na	na	3.6
1992 ¹	1.0	na	na	na	na	na	na	na	na	na	4.5

na = not available.

-- = negligible or none.

¹ Estimates.

Source: Statkom SNG.

Table 48—State grain procurements, imports and total State supplies, FSU

Year	Procurements (A)	Imports ¹ (B)	Total State supplies (A+B)
<i>Million tons</i>			
1976–80 avg.	77.7	22.3	100.0
1981/82	58.1	47.3	105.4
1982/83	69.7	34.3	104.0
1983/84	75.6	32.5	108.1
1984/85	56.3	55.5	111.8
1985/86	73.5	29.9	103.4
1986/87	78.8	27.5	106.3
1987/88	73.3	32.0	105.3
1988/89	61.5	39.0	100.5
1989/90	59.1	39.5	98.6
1990/91	68.0	29.4	97.4
1991/92	42.0	41.6	83.6
1992/93 ²	58.5	27.0	85.5

¹ Imports are USDA July–June estimates.

² Preliminary.

Source: Statkom SNG.

tempted to maintain grain deliveries to State milling enterprises by favoring imports of wheat over coarse grain in 1992/93. While discussion has begun about privatizing mixed-feed facilities in Russia, there appears to be no plans to privatize flour milling enterprises, which are heavily subsidized by the State.

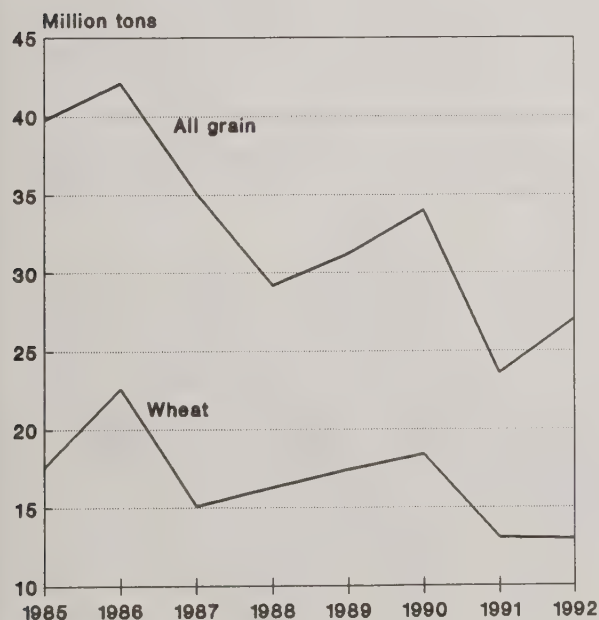
In the **Russian Federation**, State grain procurements of the 1992 crop totaled about 27 million tons, 14 percent above the prior year's 23.6 million, but still only about 25 percent of total grain output, compared to 35–40 percent during the 1980s (figure 17). Private farms reportedly sold between 1.5–2.0 million tons of 1992 grain to the State.⁷¹ Wheat procurements comprised about half the total, with about 65 percent reportedly of food quality. Procurements of rye, barley, millet, buckwheat, and pulses were up substantially from 1991, spurred by increased procurement prices.

To keep grain flowing into State elevators and thereby under State control, the Russian Government during the course of the 1992 harvest raised procurement prices three times for deliveries above specified amounts, from about 10,000 rubles (\$80) per ton in early summer to about 30,000 rubles (\$70) by the end of the year. Each price hike, which attempted to capture free market prices, slightly increased State procurements (figure 18). Inflation, close to 30 percent per month by the end of the year, quickly eroded incentives to release grain.

The role of the federal government in the marketing of grain in **Russia** is reportedly to be decentralized in 1993. The national procurement target has been scaled back to about 12 million tons from 29 million in 1992, and regional authorities will be responsible for meeting local grain needs. In 1993, the central authorities in Moscow are to procure only enough to meet the requirements of areas deemed severely lacking in grain—the large, industrialized urban centers, major military installations, and certain localities in the far north. The main grain deficit areas (oblasts) specified by the Russian Government for federal support include Moscow, St. Petersburg, Ekaterinburg, Nizhnii Novgorod, Sakhalin, Tver, Perm, Kemerovo, and the Primorsky region. (About a quarter of Russia's population is located in these oblasts.) Most other regions are to develop their own means for meeting food needs, relying on local procurement or market schemes. The reported changes in the grain procurement system during the next few years will likely involve only a shifting of control from the central authorities to regional ones, and not a significant shift to market relations.

For the **Russian** federal government to meet its new, 1993 procurement target, it announced in February 1993 a program to pay farmers in advance of their sales to the State (40–50 percent of an agreed base price to be paid upon the signing of a contract), with the remaining payment upon delivery at a price adjusted for inflation. In addition, farms meeting 1993 procurement targets have been promised a new, 50-percent rebate by the State for equipment and spare parts purchases made in 1993, as well as a continuation of the subsidies made available last year. It remains to be seen whether this program will prove any more effective than past measures, especially if the value of the ruble is not stabilized in 1993.

Figure 17
State Grain Procurements,
Russian Federation



Source: Goskomstat Rossii.

Except for Kazakhstan, most of the other republics encountered problems similar to Russia's in raising procurements in 1992. In **Ukraine**, despite repeated tactics by the State to pressure farms into selling grain, total procurements last year were just below the 1991 low of 11.5 million tons. Annual procurements in Ukraine averaged 16.7 million tons during 1986-90. Grain procurements in **Kazakhstan** in 1992, however, were nearly four times more than 1991's very low 3.4 million tons, the result of a near-record crop and fewer alternative on-farm uses for grain output. Over 70 percent of Kazakhstan's grain procurements were wheat, with much of it destined for export to other republics.

Grain Use Driven by Changes in Livestock Sector

Reduced use of grain for feed underlay the FSU's decline in total grain utilization in 1992/93 and should continue to drive total use in 1993/94 (table 49). Largely unchanged food, seed, and industrial use of grain in most republics should not offset the downward trend in feed use.

Estimated FSU feed use of grain fell sharply in 1991/92, following much reduced grain and forage crops in 1991. Due to continued tight feed supplies in the beginning of 1992 and resultant inventory drawdowns, estimated feed use remained low in 1992/93. Further contraction of the FSU livestock sector and continued feed-supply constraints should continue to cut overall demand for feed in 1993/94, despite increased on-farm feeding of unprocessed grains. Reportedly, as much as 50 percent of all grain fed is unprocessed.

While the share of unprocessed grain fed directly to animals rose (as more grain is held on farm), use of mixed feeds fell sharply due to reduced output of mixed feeds by the State

and to a large increase in their price. State production of mixed feeds (*kombikorm*), the bulk of which is grain, is expected to fall further as low grain procurements and reduced imports limit supplies. Falling output of mixed feeds will continue to primarily affect the large State hog and poultry complexes, which rely on the State for their feeds.

Decreased use of wheat for feed, a response to shifts in internal relative prices, should account for part of the drop in overall feed use. In past years, up to 40 million tons of lower-quality wheat, plus as much as 10 million tons of milling quality wheat were used as feed in the FSU. Even with reductions in overall feed use of grains, the small share of protein meals in feeds will continue to result in a very large portion of grain in feeds. In the FSU, oilseed meal reportedly averaged only 5 percent of the makeup of mixed feeds, well below that of many West European countries. On the other hand, the share of grain in mixed feeds in the FSU averaged 60-75 percent.

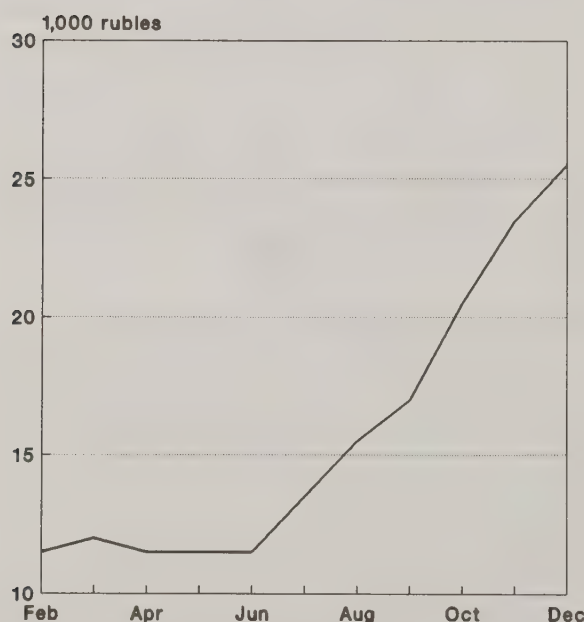
FSU food use of grain is estimated to be largely unchanged. While price liberalization last year shifted consumers from meat to relatively less expensive bread, the rise in bread prices likely reduced its use for feeding animals (table 50). Prior to price reform, as much as 5 million tons of bread per year were reportedly being fed to FSU livestock, because the old system's price of bread was low relative to mixed feed because of the high subsidy. Although bread prices have increased substantially, most republics still maintain price controls on bread, which may be resulting in some continued feeding of bread to animals. The drop in the feeding of bread to animals might thereby partly explain the decline in **Russia's** State output of flour and bread, despite the rise in per capita human consumption of bread (table 51).

On the whole, USDA projects FSU industrial and seed use of grain to remain fairly stable over the near term. Despite the low level of State grain procurements, **Russian** State output of industrial products made from grain (vodka, beer) has shown only modest declines to date (table 52). With little change in total FSU grain area expected in the near term, seed use of grains should remain fairly stable or even fall slightly if improvements are made in seed quality, thereby cutting seeding rates.

Before the republics switched from reporting grain production data from bunkerweight to cleanweight, USDA estimated a FSU grain use category which included both grain dockage (5-7 percent of production on average) and waste/losses (5-7 percent). USDA's dockage and waste estimates for total FSU grain production generally accounted for 10-14 percent of output. This appears to be supported by a 1991 Soviet official source (*Agropromyshlennii kompleks SSSR*, Goskomprodzak and Goskomstat, Moscow, 1991, p. 37) which reported annual grain losses (including losses during cleaning) of 13.6 percent for the 1986-1989 period.

In 1990, the Soviets began reporting cleanweight production figures, which revealed actual dockage of 6.9 percent on average between 1981 and 1989. For **Russia**, official data for 1986-89 show dockage averaged 8.7 percent; **Ukraine**, 4 percent; **Kazakhstan**, 6.8 percent; **Belarus**, 14.5 percent; and

Figure 18
Average 1992 Contract Prices for Grain
on "Russian Grain Exchange," Moscow



Source: Krest. Vedomosti, No. 8, 1993.

Table 49—Supply and use of grain, FSU ¹

Year beginning July 1	Production ²	Trade		Availability	Total use	Feed and residual	Stocks change
		Imports	Exports				
<i>Million tons</i>							
Wheat and coarse grains							
1987/88	181.0	33.9	2.3	212.6	208.8	137.1	3.8
1988/89	168.4	41.3	3.0	206.7	208.2	134.9	-1.5
1989/90	184.2	41.5	3.2	222.5	218.5	145.2	4.0
1990/91	205.2	29.0	2.9	231.3	227.3	153.7	4.0
1991/92	150.9	40.8	0.9	190.8	198.4	122.6	-7.6
1992/93 ³	183.2	26.5	0.5	209.2	203.7	130.2	5.5
1993/94 ⁴	172.5	28.0	0.5	200.0	202.0	128.0	-2.0
Wheat							
1987/88	77.3	22.6	1.0	98.9	96.1	48.0	2.8
1988/89	78.8	16.6	1.0	94.4	95.2	45.9	-0.8
1989/90	87.2	16.2	1.0	102.4	98.5	49.2	3.9
1990/91	101.9	16.4	1.0	117.3	113.6	64.2	3.7
1991/92	73.5	22.5	0.5	95.5	101.0	50.5	-5.5
1992/93 ³	88.6	16.5	0.5	104.6	101.4	52.4	3.2
1993/94 ⁴	78.5	18.0	0.5	96.0	97.5	48.0	-1.5
Coarse grains ⁵							
1987/88	104.0	11.3	1.3	114.0	112.9	89.1	1.1
1988/89	89.6	25.0	2.0	112.6	113.1	89.0	-0.5
1989/90	97.0	26.1	2.2	120.9	119.9	96.0	1.0
1990/91	103.3	13.3	1.9	114.7	113.7	89.5	1.0
1991/92	77.4	18.8	0.4	95.8	97.5	72.1	-1.7
1992/93 ³	94.6	10.0	0.0	104.6	102.3	77.8	2.3
1993/94 ⁴	94.0	10.0	0.0	104.0	104.5	80.0	-0.5

¹ Includes all 15 republics of the former USSR.

² Production estimates are on a cleanweight basis.

³ Preliminary.

⁴ Projected.

⁵ Coarse grains include: Corn, barley, sorghum, rye, oats, and millet.

Source: USDA, May 1993.

¹ Includes all 15 republics of the former USSR.

² Production estimates are on a cleanweight basis.

³ Preliminary.

⁴ Projected.

⁵ Coarse grains include: Corn, barley, sorghum, rye, oats, and millet.

Source: USDA, May 1993.

Estonia, 22.9 percent. As a result of the change in reporting by the FSU, USDA no longer estimates grain dockage.

Grain waste and losses, which USDA continues to estimate, should diminish over time as reforms, which provide greater financial incentives and more identifiable ownership of grain, lead to improved efficiency. However, in the short run, with farms holding far more grain than in the past, losses due to inadequate on-farm storage and drying facilities may remain large.

USDA estimated some stock building in 1992/93, following a large drawdown of FSU grain stocks in 1991/92, due to the poor 1991 grain crop. Given the projected fall in FSU grain production in 1993 and continued financial constraints on imports, stocks are forecast to decline in 1993/94.

FSU Grain Imports Up Slightly in 1993/94

Lower 1993 production and only slightly reduced grain utilization should lead to increased 1993/94 grain imports by the FSU. However, hard currency constraints will mean that the amount of grain imports and the source of the imports will be largely determined by credit availability and humanitarian assistance. USDA projects 1993/94 (July-June) FSU grain imports (wheat, coarse grain, and milled rice) at 28.8 million metric tons, up 1.5 million from 1992/93 imports of 27.3 million (table 49).

The longer-term outlook for FSU grain imports is mixed, as economic restructuring in the republics significantly affects production and consumption trends. The financial situation of the FSU necessitates lower grain imports. Hard currency constraints complicate Russia's ability to service its debt, while the other republics lack the means to purchase much

Table 50—Annual per capita consumption of selected food products, FSU republics

Republic	Grain products ¹					Potatoes					Fruits, berries, and grapes ²				
	1980	1985	1990	1991	1992 ³	1980	1985	1990	1991	1992 ³	1980	1985	1990	1991	1992 ³
<i>Kilograms</i>															
Russian Fed.	126	119	119	120	122	118	109	106	112	119	30	40	35	35	33
Ukraine	146	138	141	142	143	133	139	131	116	131	40	50	47	37	38
Belarus	140	131	126	126	na	200	185	170	165	na	30	60	38	35	na
Moldova	177	173	171	175	na	75	79	69	69	na	44	64	79	79	na
Kazakhstan	147	146	146	147	na	86	89	85	75	na	23	22	23	17	na
Uzbekistan	177	177	170	167	na	29	26	29	25	na	39	31	23	24	na
Kyrgyzstan	149	144	139	134	na	56	65	69	62	na	30	25	16	18	na
Tajikistan	177	178	167	131	na	35	35	35	31	na	44	38	30	27	na
Turkmenistan	165	168	165	167	na	23	31	21	19	na	18	18	28	36	na
Armenia	140	134	129	130	na	55	65	58	77	na	35	47	41	62	na
Azerbaijan	160	158	151	134	na	25	28	27	22	na	31	39	33	26	na
Georgia	190	190	183	146 ³	na	46	49	41	33 ³	na	39	64	49	39 ³	na
Lithuania	111	107	111	92	na	150	134	157	155	na	40	52	39	46	na
Latvia	107	104	107	112	na	128	122	125	127	na	37	43	33	40	na
Estonia	96	92	77	79	na	122	113	103	104	na	38	44	36	27	na
Total FSU	138	133	133	134 ³	na	109	104	100	100 ³	na	33	41	36	29 ³	na

na = not available.

¹ Including pulses. ² Without processing for wine. ³ Estimates.

Sources: *Vestnik statistiki*, No. 10, 1991; Goskomstat Rossii, 1992.

grain on the world market without Western assistance. Almost all of FSU grain imported since 1991 has been with the use of export credit guarantees, as the creditworthiness of the FSU fell during the late 1980s, when private banks were unwilling to provide loans without government guarantees. Moreover, continued reforms in the FSU republics are expected to lead to more efficient handling, marketing, and utilization. In some republics, increased domestic production of grain over the long term is expected, which would also lead to lower FSU grain import demand, especially for wheat. Nevertheless, the region most likely will continue to require coarse grain imports, particularly corn, because the FSU has less of a comparative advantage in corn production.

Republic Grain Purchases Dependent on Credit and Food Aid

The breakup of the Soviet Union at the end of 1991 led to the dismantling of the centralized purchasing system that was controlled and financed by the government. During 1992 and 1993, Western credit packages were reformulated for specific republics eligible for export guarantees. Food aid and concessional loans were provided for those republics ineligible for credit guarantees. This trend is expected to continue in 1993/94.

Despite a 1992 protocol to coordinate purchases of food and other materials among all FSU nations (excluding the Baltics and Ukraine), each republic is handling its own imports. Grain imports are for the most part still controlled by the republic governments, while non-State-controlled companies

have been slow to form. Exportkhleb, the Soviet-era grain trading organization, declared itself a joint-stock company in 1992. Republic governments hold most of the shares, with

Table 51—Output of food products from grain, Russian Federation ¹

Year	Flour	Pasta products	Bread & rolls	Groats
<i>Million tons</i>				
1980	23.2	0.90	19.90	na
1985	22.5	0.95	19.10	na
1986	21.1	0.96	19.10	2.80
1987	20.8	0.99	18.00	2.76
1988	20.1	1.00	17.70	2.84
1989	19.9	1.01	17.60	2.88
1990	20.7	1.04	18.20	2.85
1991	20.5	1.12	18.80	2.70
1992	19.9	1.11	16.90	1.90

na = not available.

¹ Output from all enterprises.

Source: Goskomstat Rossii.

**Table 52--Industrial products from grain,
Russian Federation**

Year	Vodka	Beer	Starch
	--- Million decaliters ---		1,000 tons
1980	208	331	130
1985	161	350	157
1988	91	288	192
1989	117	316	193
1990	138	336	179
1991	153	333	163
1992	151	268	na

na = not available.

Source: Goskomstat Rossii.

Russia holding the majority. While any republic can contract the services of Exportkhleb in negotiating a grain sale, the Russian Federation is the main client.

A small share of grain trade is occurring outside State channels, as grain-deficit regions with raw materials are able to arrange imports via third parties through countertrade (box 4). Most of the countertrade to date has been with European and American grain suppliers. It is estimated that 1.5-2 million tons of U.S. wheat has been sold through countertrade arrangements in 1992/93, mostly to Uzbekistan in exchange for cotton.

Given the FSU's accumulated debt and hard currency constraints, export credit guarantees, concessional loans, and food donations will continue to be important determinants of import source and mix. The United States, a major supplier of grain to the FSU, has made available over \$6-\$7 billion in GSM-102 export credit guarantees, P.L. 480 Title I, Food for Progress, and Section 416(b) concessional loans and donations since January 1991 (figure 19). Since 1991, almost all U.S. grain exports to the FSU were financed using GSM-102 export credit guarantees. Since September 1991 these exports carry a full U.S. Government guarantee of the principal and part of the interest.

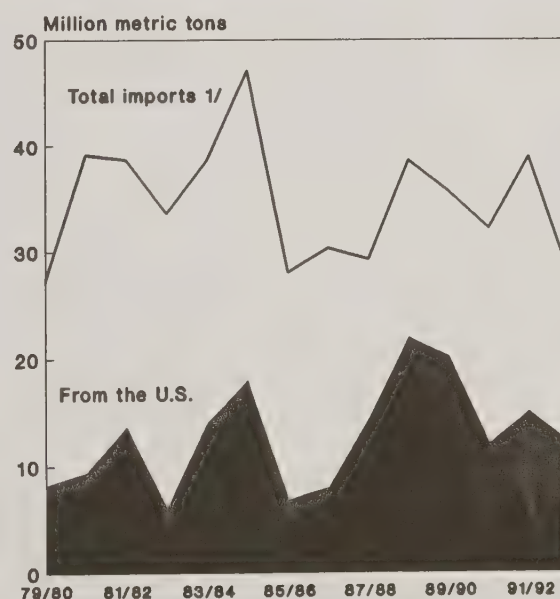
However, at the end of November 1992, Russia was suspended from the GSM-102 program for defaulting on its repayments. Despite the April 1993 Paris Club debt-rescheduling agreement, which included part of Russia's GSM-102 debt and arrears, Russia remains suspended from the GSM-102 program with \$850 million in arrears as of May 13, 1993. Banks have requested close to \$677 million in repayment from USDA, of which about \$398 million has been paid. Before Russia's suspension, around \$110 million in credit for wheat and pork purchases were unused, and an additional \$275 million in credit scheduled to be announced in early 1993 has been also frozen. A portion of Ukraine's fiscal year

1993 credit guarantee allocation, announced in October 1992, remains nonoperational.

Russia's repayment difficulties and a general lack of financial resources for many of the republics have necessitated the use of alternative means of financing FSU grain imports from the United States. As a result, food aid and concessional loans will be a major route for financing U.S. grain exports to the FSU during 1993/94. Countertrade will facilitate small levels of grain trade in the short term, but it is inefficient and does not provide a long-term solution to the FSU's financial situation. Lowering credit standards and using the longer-term GSM-103 credit guarantees, which are repaid in 7 years, have been suggested by some as a means of enabling Russia and Ukraine to begin making commercial purchases again. However, there is concern that lowering credit standards could set a precedent for other countries which receive or want to receive GSM-102 credits. Despite the higher costs for all parties involved, alternative financing arrangements will be necessary to maintain the U.S. share of FSU grain imports in the short-to-medium run.

The European Community, in recent years the second largest grain exporter to the FSU (5-8 million tons annually), has also put together export credit and food aid packages for each of the republics. Approximately ECU 1.75 billion (\$2.5 billion) has been provided to the FSU-12 (over half to Russia) since 1991. The Baltic nations have received their own credit line, valued at ECU 45 million. Some of the credit allocated has been tied to triangular trade with Eastern Europe, whereby the FSU can purchase East European grain with EC credit guarantees. Approximately 500,000 to 1 million tons of East European grain have been contracted through this arrangement. France and Germany have issued their own govern-

**Figure 19
FSU Total Grain Imports
(October/September)**



1/ Estimates.
Source: USDA, FATUS.

ment-backed export credit guarantees (COFACE and Hermes, respectively) for grain sales to the FSU. Russia has also defaulted on payments for these various credit programs. Partial payments and rescheduling have enabled Russia to continue receiving EC and EC-member-State credits for grain purchases.

Canada, an important exporter of wheat to the FSU, has allocated a revolving credit line of Can\$1.5 billion (U.S.\$1.2 billion) to the FSU since 1990. Grain sales have been suspended since September 1992, when Russia failed to make debt payments. Faced with a drop in grain exports if Russia's debt was not rescheduled, Canada has pursued barter trade with Russia, Uzbekistan, and other FSU republics. A week prior to the April 1993 Paris Club agreement, Canadian Prime Minister Brian Mulroney announced that Canada and Russia had reached an agreement on Russia's arrears. Additionally, Prime Minister Mulroney announced a \$200-million aid package during the U.S.-Russia Vancouver Summit.

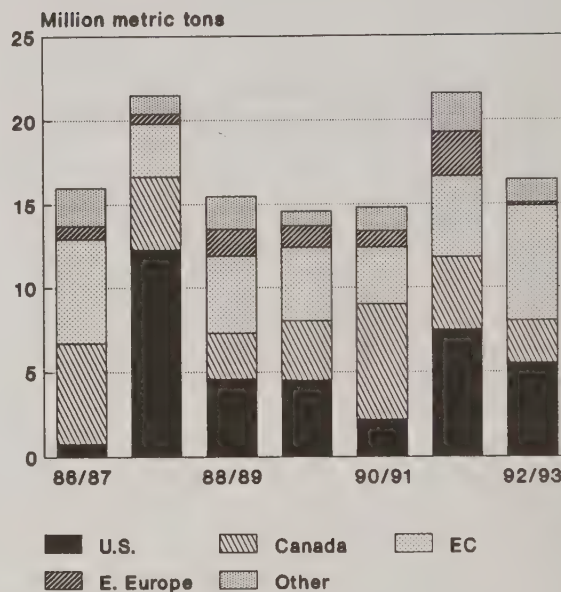
Other grain suppliers to the FSU, including Eastern Europe, Turkey, and China, continued trade through barter arrangements and credit. Turkey, which has recently become a major supplier to the Central Asian republics, has purchased wheat from Kazakhstan and Canada to export to the region. During fall 1992, Turkey announced the availability of \$400 million in export credits for Central Asia, Azerbaijan, and Georgia. Reportedly, implementation of the credit program has been slow and few deliveries have been made. In part, this could be due to low exportable supplies. Other countries are utilizing barter to resume trade. For example, Australia, which stopped grain shipments to the FSU in 1991 due to nonpayment of debt, reportedly sold 1.5 million tons of wheat to Russia in exchange for aluminum. Argentina broke a 4-year slump in sales when it reportedly sold 500,000 tons of grain to Estonia, most likely through the use of barter.

FSU Wheat Import Demand Up Slightly

USDA projects wheat imports for 1993/94 at 18 million tons, compared with 16.5 million tons in 1992/93. The FSU is expected to continue imports of mostly milling quality wheat, with some purchases of feed wheat, based on credit allocations and donations. Lower domestic production and only slight falls in utilization are the main forces behind increased wheat import demand. Human consumption of bread is expected to remain high due to relative price changes. However, livestock consumption of wheat (around 50 percent of the total wheat supply) may decline as a result of falling inventories and the possibly longer-term substitution of protein meal for grain in mixed feed for more balanced rations. However, this decline in livestock consumption of wheat in the short term will be slight, as farms remain reluctant to sell wheat to the State.

The main wheat exporters to the FSU are the United States, the EC, Canada, Eastern Europe, and recently Turkey (figure 20). The first three suppliers have held over 90 percent of the total FSU wheat market during the last 5-6 years. Wheat exports from Argentina and Australia, historically important suppliers, have dwindled in recent years due to the lack of credit offered by these nations for FSU purchases. Eastern

Figure 20
FSU Wheat Imports
(July/June) 1/



1/ Estimates, 1992/93 projection.
Source: USDA.

Europe and Turkey have been able to continue wheat sales through triangular trade, small credit packages, and barter. Competition for market share is expected to intensify as FSU import demand declines.

The United States has averaged 5 million tons of wheat exports to the FSU each marketing year since 1987/88, holding close to 40 percent of FSU market share over the last 2 years. The United States exports milling quality wheat, traditionally hard red winter and more recently soft red winter and hard red spring varieties, depending on seasonal prices and destination. Since fiscal year 1987, the FSU has been eligible for the Export Enhancement Program (EEP) for purchases of U.S. wheat, and the FSU to date has purchased more than 35 million metric tons, with \$1.2 billion in export subsidies. The average bonus has totaled \$34 per ton, 25 percent of the average price. At the end of April 1993, 2.3 million tons of wheat were sold under EEP during fiscal 1993, with total bonuses equaling \$87 million. U.S. wheat exports to the FSU in 1993/94 will continue to largely depend on the ability of Russia and Ukraine to service their external debt and the availability of various concessional loan and food donation programs.

The EC is the second largest wheat exporter to the FSU, averaging 4-5 million tons of wheat sales per marketing year since 1987/88, around 30 percent of the FSU wheat market. Credit guarantees, export subsidies, and regional proximity have helped the EC maintain wheat sales to the region. The FSU purchases a combination of milling quality and feed wheat from the EC-member nations, most notably France, Germany, and Great Britain. EC wheat exports to the FSU in 1993/94 are expected to be near average, given continued assistance to the region and sufficient supplies.

Canada is also an important wheat supplier to the FSU, with a quarter share of the market. Average annual wheat exports to the FSU have been 4 million tons since 1987/88. In 1992, President Boris Yeltsin and Prime Minister Brian Mulroney signed a 5-year, 25-million-metric-ton agreement. However, shipments were stopped in September 1992 as a result of Russia's default on its debt repayment to Canada. While it was announced that Canada and Russia had resolved the problem of Russia's arrears, the Canadian Wheat Board indicated that a resumption of shipments would not be immediate. Reportedly, Russia and Canada have been in negotiations for the sale of 500,000 tons of wheat, either for hard currency or through barter.

FSU Coarse Grain Demand Stable

FSU coarse grain imports, projected at 10 million tons for 1993/94, are nearly unchanged from the 1992/93 estimate of 10.5 million tons. A combination of corn, barley, and rye make up most of these imports. Coarse grain demand should not fall as significantly as wheat demand over the longer term, because the FSU is expected to continue to require coarse grain imports, particularly of corn. The United States, EC, Canada, Eastern Europe, and China are the main coarse grain suppliers (figure 21).

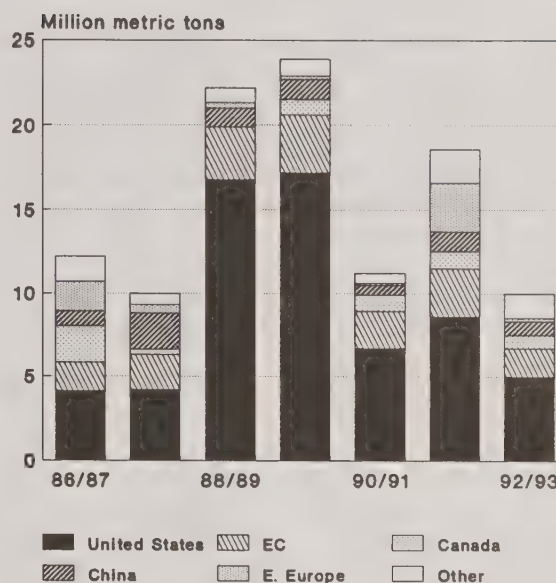
The United States holds a 50-60 percent share of the FSU coarse grain market, supplying nearly all corn exported to the region. The United States is expected to maintain its share of declining FSU coarse grain needs because it is the only country able to supply the volume of corn demanded by the FSU and provide credit guarantees with which to purchase it. Again, the use of long-term credit guarantees, concessional loans, and food aid will be necessary for FSU purchases of U.S. corn in 1993/94.

The EC, Canada, and Eastern Europe are the primary providers of barley and rye to the FSU. Combined, these nations represent 20-30 percent of total coarse grain exports to the FSU. Eastern Europe could increase barter sales of coarse grains to the FSU if this year's harvest recovers from the 1992/93 drought. China, which usually supplies the FSU with 1-2 million tons of corn yearly, also hopes to increase its market share though barter. Given traditional ties and regional proximity, especially with Central Asia and the Russian Far East, China might increase corn exports to the FSU. At the end of 1992, President Boris Yeltsin stated that Russia would purchase a sizable amount of corn from China in 1993 to supply the Russian Far East and Siberia.⁷² However, no official agreements have been announced.

Interrepublic Trade Developing

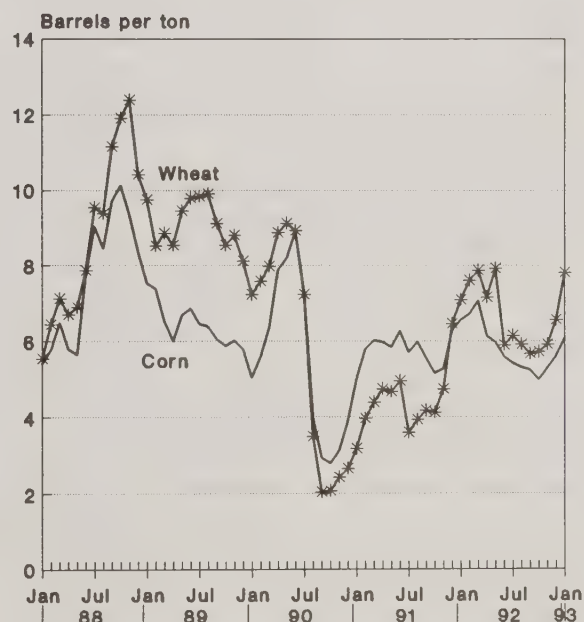
Interrepublic grain trade in 1993/94 will highly depend on domestic production and procurement, as well as the degree to which a system develops that facilitates increased and freer trade. While republic trade policies are still evolving, their initial response after independence was to ban or impede non-State-regulated export of strategic products, such as grain. In addition to lowering trade barriers, a payment-clearing mechanism is necessary in order to facilitate transactions between the republics. Overall, the FSU is expected to remain a grain-deficit region, with only **Kazakhstan and Ukraine**

Figure 21
FSU Coarse Grain Imports
(July/June) 1/



1/ Estimates, 1992/93 projection.
Source: USDA.

Figure 22
Grain/Oil Terms of Trade 1/



1/ Wheat price includes export subsidy.

potential net wheat exporters in years of above-average production. Both of these republics will continue to be net importers of coarse grains.

In 1992/93, most of the FSU republics looked to import grain despite a generally improved harvest. **Kazakhstan**, which produced a near-record crop of about 29 million tons, clean-

Box 4

Barter and Countertrade Options for the Republics

Several of the republics possess raw materials which can be used to pay for agricultural commodities through countertrade or barter agreements with U.S. and other Western exporters. Barter involves the direct exchange of goods between two parties, while countertrade involves a third party which facilitates the exchange. The third party purchases raw materials and goods from a FSU nation, and sells the products on the world market for hard currency. The third party then uses the hard currency to purchase goods desired by the FSU country.

The breakdown of interrepublic trade is forcing many FSU nations to look to the world market for alternative sources of agricultural products, especially grain. Because these nations have little hard currency and are unable to use the still inconvertible ruble to pay for imports, barter and countertrade are attractive alternatives. For example, the Russian Federation is well endowed with oil, coal, minerals, steel, gas, and ferrous metals. Many of the Central Asian nations, such as Uzbekistan and Turkmenistan, produce cotton, oil, and gas.

Some of the FSU nations are using barter and countertrade to purchase U.S. agricultural goods to get around hard currency constraints. The U.S. Department of Agriculture has promoted countertrade sales of U.S. agricultural goods to the republics of the FSU-12 through the EEP, Sunflowerseed Oil Assistance Program (SOAP), and the Dairy Export Incentive Program (DEIP). The first two programs are authorized by the Food, Agriculture, Conservation, and Trade Act of 1990 to permit USDA to use export bonuses through 1995 to make U.S. commodities more competitive in the world market. DEIP, which operates on a bid bonus system similar to EEP, was created by the 1985 farm bill and continued in the 1990 farm bill, which mandates its operation by the CCC through 1995.

In September 1992, USDA targeted 500,000 tons of its 5.5 million tons of EEP wheat exports to the FSU for sale through countertrade arrangements, allowing U.S. wheat exporters to sell wheat indirectly to FSU nations via third parties outside the FSU. An earlier EEP initiative of 200,000 tons of wheat was allocated for countertrade on a trial basis in August 1992 and closed after the September

initiative was announced. By making subsequent increases to the amount of wheat available for countertrade within the 5.5-million-ton EEP ceiling, over 1.6 million tons of wheat had been targeted for EEP countertrade sales as of May 1993. The largest purchaser of this grain was Uzbekistan, which is selling cotton to third-party intermediaries to import U.S. wheat under the EEP countertrade invitation.

Other commodities having EEP invitations for countertrade include wheat flour, barley, rice, vegetable oil, and frozen pork. Around 10-30 percent of the total FSU-12 EEP initiatives for these products is available for countertrade agreements.

U.S. wheat is the only commodity where countertrade arrangements are noticeable so far. Small amounts of barley (20,000 tons) and milk powder (37 tons) have been sold through countertrade under the EEP and DEIP as of May 1993.

In the short run, barter and countertrade arrangements help to facilitate trade and to increase economic decentralization in some parts of the FSU. However, barter and countertrade are less attractive alternatives to commercial trade, because of higher transaction costs and implicit subsidies involved in these kinds of transactions. It should also be noted that while barter trade is increasing as a share of the FSU's total agricultural trade, there is a small likelihood that it could significantly increase. One limitation is that the FSU nations would rather receive hard currency (needed for debt servicing and investment) for their resources.

Also, the terms of trade between oil and grain have begun to deteriorate. While the purchase of 1 ton of grain during 1990/91 (July/June) required an average of 4 barrels of oil, in 1991/92 it required 6 barrels (figure 22). Partial data for 1992/93 indicate that these terms will not improve greatly.

Lastly, production may not always be sufficient to allow for large exports to use for barter. Oil production and the extraction of other natural resources continue to decline as a result of insufficient investment and maintenance. The cotton producing regions of Central Asia are slowly cutting back area sown to cotton for environmental and other reasons, which could lower output.

weight, was a net wheat exporter to the region during 1992/93. Although Kazakhstan has sold a small portion of its wheat output for hard currency, obligations to some of the FSU republics have led to the sale of most of the surplus through interrepublic trade for rubles or commodities. By the end of 1992, Russia had received 2 million tons from Kazakhstan and negotiated for an additional 2-3 million. **Central Asia, Belarus, and Moldova**, whose harvests were adversely affected by drought, also have agreements to purchase grain from **Kazakhstan** in 1993.

Ukraine, long considered the "bread basket of the Soviet Union," reportedly exported a small amount of wheat during 1992/93. However, given 2 consecutive years of below-average output and 1992/93 grain imports of around 2-3 million tons, Ukraine was likely a net importer. Until Ukraine increases output to 45-50 million tons and utilizes grain more efficiently, the republic may remain a net importer of grain.

State Moves To Slow Market-Based Restructuring in Livestock Sector

After years of massive State subsidies to an inefficient, State-controlled livestock sector, price reform, implemented in January 1992, began a process whereby State subsidies to both livestock producers and meat consumers were slashed. The results of the market-based reform were large contractions in animal inventories, output, and consumer demand. However, within a few months after price liberalization, the State in Russia and certain other republics began to reintroduce subsidies, thereby backing away from market-driven restructuring.
[Christian J. Foster]

Contractions in the FSU's livestock sector, which began in 1990 and intensified in 1991 and 1992 due to price liberalization, may lessen slightly in 1993 as most of the FSU governments reintroduce substantial subsidies to the sector, and back away from earlier reform measures. With renewed subsidies this year and growth in 1992 grain output and procurements, the drop in animal inventories in 1993 might be lower than last year. Livestock productivity could also improve slightly, resulting in a smaller fall in output for 1993. Nevertheless, reduced overall feed supplies, continued low returns to livestock producers, and further declines in consumer demand for livestock products should lead to further retrenchment in 1993. While growth in animal holdings in the private sector might mitigate the degree of contractions, the large State livestock complexes, which are dependent on the State for feed supplies for their poultry and hog operations, will likely continue downsizing. In 1992, livestock inventories, feeding efficiencies, meat production, and State procurements further deteriorated in nearly all the republics, in many cases falling to levels of the late 1970s.

Is There a Crisis in the Livestock Sector?

While many in the FSU view the contraction of the livestock sector as a crisis, many Western economists regard it as an economically rational response to the development of a market-driven economy. Per capita meat consumption in the FSU continues to exceed levels in countries with similar per capita income, such as Mexico, Venezuela, Brazil, Turkey, Portugal, and South Korea. In fact, in some Western industrialized nations with much higher per capita incomes, such as Sweden, Norway, and Finland, per capita meat consumption is near Russia's. The high level of meat production and consumption mandated earlier by Soviet central planners in Russia and the other FSU republics was achieved at the cost of large, direct and indirect subsidies, which represented the costly use in production of substantial real inputs—fuel, labor, mixed feeds.

Research at the Economic Research Service of USDA indicates that the cost of livestock production in the FSU was high relative to that in many other countries. As subsidies fall and consumers pay the full real cost of production, demand is declining, with the result that output and herd size are also

falling. Yet, reductions in animal inventories need not threaten long-run production potential, given the possibilities for increasing animal productivity. For example, in 1991 the U.S. hog industry produced about 7 million tons of pork from 57 million swine. In the FSU, about 6 million tons of pork were produced from about 70 million swine.

Farms Downsize Inventories

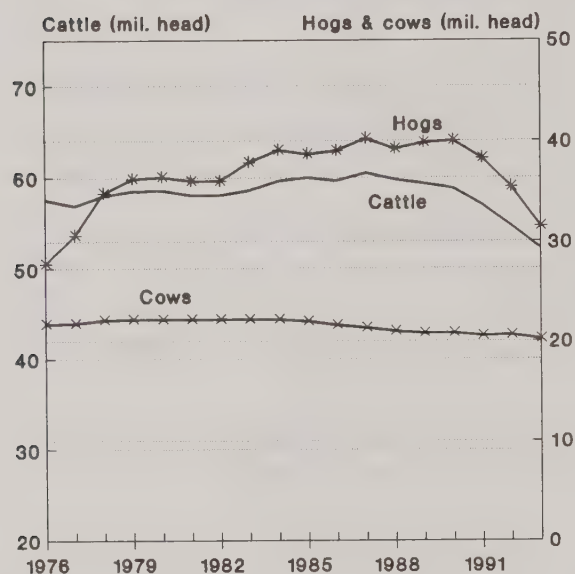
Farms markedly reduced inventories in 1992 through limiting herd replacement and slaughter—mainly of the least productive animals, but including some breeding stock. The number of offspring per 100 head of breeding stock in Russia fell 1 percent in 1992, compared to a fall of 4 percent for the FSU. Birthing rates of piglets in Russia fell 10 percent in 1992, compared to a fall of 9 percent for the FSU as a whole. Drawdowns have most affected State livestock complexes—mainly hog and poultry farms and those farms in northern regions—dependent on the State for feed supplies.

More incidence of disease among herds due to poorer feed rations and reduced availability of veterinary medicines also reduced inventories. In the Russian Federation, animal deaths, which increased an average of about 10 percent in 1991, rose by a similar amount in 1992. For the FSU, 1992 cattle deaths due to illness rose about 10 percent from 1991; swine deaths, 9 percent; and sheep and goats, 5 percent.

FSU inventories in terms of standard animal units fell about 7 percent in 1992, about double the 2 to 3-percent declines in 1990 and 1991. Increased private sector animal holdings, many transferred from State farms, helped to mitigate the decline in overall inventories. In Russia, from January 1992 to January 1993, cattle inventories on all types of farms declined about 5 percent; cows, 2 percent; and swine, 11 percent (figure 23 and table 53). On Russian State farms, poultry numbers decreased about 16 percent. On the other hand, cattle inventories in the Russian private sector grew 7 percent and cows 9 percent, largely due to the ability of farms to graze these animals (figure 24).¹³ Private holdings of swine, however, remained unchanged. The share of Russia's total inventories maintained by the private sector rose from 19 to 22 percent for cattle, from 28 to 31 percent for cows,

Figure 23

Livestock Inventories, All Farms, Russian Federation 1/



1993 preliminary.

1/ January 1.

Source: Goskomstat Rossii.

and from 22 to 25 percent for swine. In Ukraine, private farm holdings of cattle and cows increased 3 and 7 percent, respectively.

Feed Supplies Remain Tight

One of the initial causes of inventory reductions in 1992 was the dramatic drop in the FSU's feed supplies (coarse, pasture, succulent, and concentrate feeds) entering the winter of 1991/92. In Russia, 1991 production declined substantially for coarse grains (down 25 percent) and forage crops (silage, down 20 percent; feed roots, 33 percent; and hay cuttings, 8 percent). This affected on-farm feed supplies as well as the raw-material base of the State mixed-feed enterprises. State grain procurements, on which the mixed-feed industry depends, were near a record low in 1991 and improved only slightly in 1992. The result was a drop in Russia's mixed-feed output of 9 percent in 1991 from 41 million tons in 1990, and an approximate 25-percent decline in 1992.

Going into the winter of 1992/93, FSU feed supplies, primarily coarse and succulent crops, were down 10-20 percent from 1991/92, but feed demand was partly offset by reduced animal herds. In the Russian Federation, feed supplies (in standard feed units) on State and collective farms on October 1, 1992, were 61.3 million tons, 15 percent below the year earlier. However, based on lower animal inventories at that time, feed available per standard head of livestock was down only 6 percent. As of March 1, 1993, Russia's feed supplies totalled 35.1 million tons, 2 percent below the same time in 1992, but, on a per animal basis, up 10 percent from 1992.

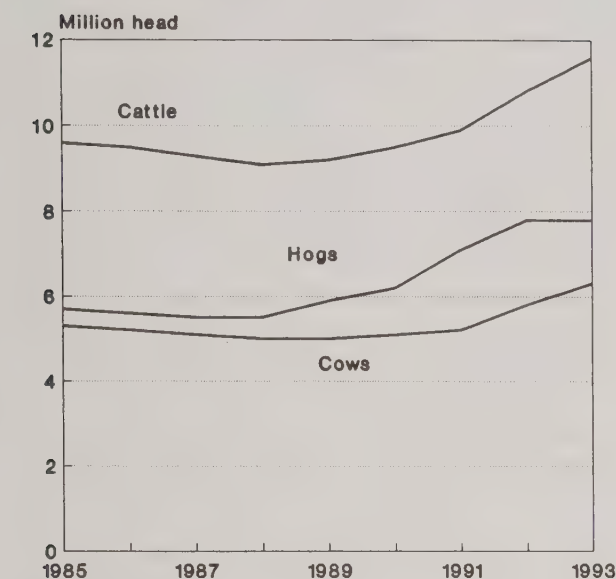
Table 53—January 1 livestock inventories and animal units from all farms, FSU republics

Year	Cattle		Hogs	Sheep & goats	Horses	Poultry	Total animal units ²
	Total	Cows					
Former USSR							
	<i>Million head</i>						
1981	115.1	43.4	73.4	147.5	5.6	1,032.4	149.4
1986	120.9	42.9	77.8	147.3	5.8	1,165.5	156.9
1989	119.6	41.8	78.1	147.4	5.9	1,199.5	156.5
1990	118.4	41.7	79.0	145.4	5.9	1,213.9	156.1
1991	115.7	41.5	75.6	140.3	5.9	1,206.1	152.8
1992 ¹	112.0	41.3	70.0	136.0	5.9	1,185.0	147.9
Russian Federation							
	<i>Million head</i>						
1981	58.1	22.2	36.0	65.0	2.5	564	74.8
1986	59.6	21.6	39.0	63.4	2.6	628	77.6
1989	59.3	20.8	39.8	62.7	2.6	646	77.6
1990	58.8	20.8	40.0	61.3	2.6	654	77.4
1991	57.0	20.5	38.3	58.2	2.6	660	75.5
1992	54.7	20.6	35.4	55.3	2.6	652	72.9
1993	52.2	20.2	31.5	51.2	2.6	568	67.9
Ukraine							
	<i>1,000 head</i>						
1981	25,368	9,271	19,783	9,051	837	233,600	31,278
1986	26,633	8,851	20,088	9,222	827	252,600	32,348
1989	25,621	8,567	19,471	9,243	782	254,500	31,437
1990	25,195	8,528	19,947	9,003	754	255,100	31,269
1991	24,623	8,378	19,427	8,419	738	246,100	30,455
1992	23,728	8,263	17,839	7,829	na	243,100	na
1993	22,457	na	16,175	7,237	na	na	na
Kazakhstan							
	<i>1,000 head</i>						
1981	8,693	2,985	3,093	35,207	1,300	48,100	13,120
1986	9,165	3,087	2,968	35,485	1,455	55,400	13,736
1989	9,752	3,273	3,188	36,498	1,581	58,400	14,516
1990	9,818	3,327	3,264	36,223	1,619	59,300	14,628
1991	9,756	3,367	3,224	35,700	1,626	59,900	14,562
1992	9,592	3,490	2,976	34,556	1,667	59,932	14,365
1993	9,576	3,623	2,591	34,420	1,704	53,465	14,187
Belarus							
	<i>1,000 head</i>						
1981	6,768	2,738	4,567	570	231	39,184	7,598
1986	7,535	2,683	5,014	660	229	44,263	8,279
1989	7,271	2,481	5,134	600	223	47,471	8,128
1990	7,166	2,439	5,204	500	219	49,768	8,101
1991	6,975	2,362	5,051	400	217	50,600	7,914
1992	6,600	2,300	4,700	400	na	51,700	na
Baltic States							
	<i>1,000 head</i>						
1981	4,461	1,755	5,396	424	126	31,916	5,804
1986	4,838	1,741	5,505	433	124	36,168	6,141
1989	4,714	1,693	5,424	405	120	36,597	6,025
1990	4,700	1,686	5,365	404	120	36,632	5,997
1991	4,519	1,658	4,797	372	120	33,673	5,644
1992	4,288	1,627	4,225	396	121	32,927	5,310

na = not available. ¹ Preliminary.

² In terms of cows. Conversion ratio as follows: Cattle (other than cows) 0.6; hog 0.3; sheep and goats 0.1; horses 1.0; poultry 0.02
Source: Statkom SNG.

Figure 24
Private Livestock Holdings,
Russian Federation 1/



1993 preliminary.
1/ January 1.
Source: Goskomstat Rossii.

State Reintroduces Subsidies After Earlier Cutbacks

Price liberalization and the accompanying reduction in subsidies in January 1992, which brought supply and demand into closer balance, intensified the contractions caused by earlier feed supply constraints. As distorting subsidies were removed, prices for livestock inputs (mixed feed, fuel, medicine, etc.) rose sharply as they moved closer to actual cost levels. Farms were thus faced with much higher production costs that more clearly reflected true costs of producing animal products. Farms also suffered a worsening of their terms of trade, as the prices they paid for inputs rose more than those received for output. In Ukraine in 1992, while procurement prices for meat rose 14-fold, prices for inputs grew 38 times.⁷⁴ In Russia, State meat procurement prices increased 6 to 9-fold, but the price of mixed feeds rose 16 times.⁷⁵ Deterioration in terms of trade indicated the massive extent to which farms were previously subsidized indirectly through the price system, as well as directly with State budget subsidies.

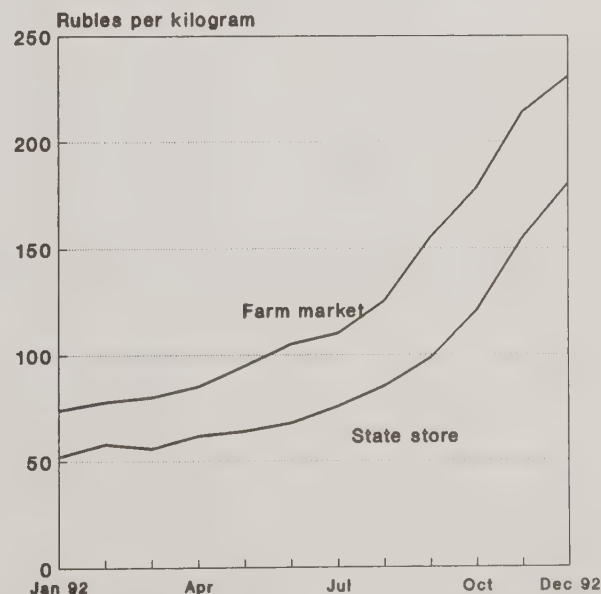
In Russia, solely due to the May 1992 reintroduction of subsidies, inefficient livestock producers were able to stay solvent last year. Direct and indirect 1992 subsidies to Russia's livestock producers totaled 207 billion rubles, including 45 billion towards purchases of fuels.⁷⁶ Reportedly, the "profitability" (*rentabel'nost'*) of livestock producers in 1992 was 22 percent, while the "profitability" of crop farmers was 117 percent.⁷⁷ To prevent further downsizing in the livestock sector, the Russian Government announced plans to allocate more than 400 billion rubles (\$500 million based on \$1 = 800 rubles) in subsidies to livestock producers this year, thereby resisting market-driven restructuring.

Sharp Decline in Consumer Demand

Another cause of the decline in inventories was the widening spread between retail and farm prices, which reduced consumer demand while limiting producer incentives. In 1992, as retail prices sharply rose (to levels more closely reflecting the real costs of production) and real wages dropped, per capita meat consumption fell as consumers switched to more affordable bread and potatoes (figure 25 and table 54). In Russia, per capita consumption of meat and dairy products declined about 15 percent in 1992, while consumption of bread and potatoes rose about 5 percent (figure 26). In Ukraine, 1992 per capita consumption of meat, milk, and eggs reportedly dropped 15 percent, 17 percent, and 17 percent from 1991. The CIS Statistical Committee reported that, in 1992, the share of individuals consuming less than 1 kilogram of fresh meat (including lard) per month rose in Russia from 9.6 percent to 11.7 percent, in Uzbekistan from 33.2 percent to 36.9 percent, and in Belarus from 1.7 percent to 2.6 percent.⁷⁸

In many areas, consumer prices rose so high they exceeded market-clearing levels and caused meat surpluses. In the aggregate in Russia, stocks of meat (beef, pork, and poultry) in retail and wholesale trade organizations and State enterprises on January 1, 1993, were double those of a year ago, 2.2 kilograms per capita, or about 325,000 tons.⁷⁹ Stocks of eggs in Russia were also up markedly from a year ago. In Ukraine, December 1992 stocks of meat, sausages, and eggs in the wholesale trade organizations were up about 50 percent, 300 percent, and 70 percent, compared to December 1991. Consequently, meat processors have been less willing to purchase animals from producers, further diminishing incentives for livestock farmers. Many areas which reported shortages of meat in State stores last year actually had abundant supplies

Figure 25
Consumer Beef Prices, Russian
Federation, Monthly Average, 1992



Source: Kommersant, various
issues, 1992.

Table 54—Annual per capita consumption of selected food products, FSU republics

Republic	Meat and meat products ¹					Fish and fish products					Milk and milk products ²					Eggs				
	1980	1985	1990	1991	1992 ³	1980	1985	1990	1991	1992 ³	1980	1985	1990	1991	1992 ³	1980	1985	1990	1991	1992 ³
-----Kilograms-----											-----Number-----									
Russian Fed.	55	60	67	61	52	22.5	22.5	20.3	15.8	13.3	328	344	386	347	295	279	299	297	288	256
Ukraine	51	56	57	55	47	16.7	18.5	17.5	12.2	8.5	331	350	373	345	286	239	276	272	256	212
Belarus	50	58	62	60	na	16.3	19.7	19.4	12.8	na	369	399	425	415	na	294	315	323	320	na
Moldova	41	45	49	47	na	13.9	13.4	12.0	6.7	na	265	294	303	259	na	183	209	203	195	na
Kazakhstan	46	48	61	61	na	10.2	10.9	10.0	7.0	na	275	260	307	303	na	206	217	222	206	na
Uzbekistan	27	28	28	26	na	4.4	5.0	4.9	3.1	na	185	180	210	196	na	90	107	120	107	na
Kyrgyzstan	31	34	47	42	na	5.9	6.5	6.3	3.7	na	177	182	266	249	na	108	124	154	144	na
Tajikistan	29	27	23	19	na	2.9	3.3	3.3	2.7	na	164	152	161	124	na	79	104	111	82	na
Turkmenistan	39	37	38	34	na	4.7	4.6	4.3	3.1	na	174	168	207	176	na	87	92	98	92	na
Armenia	44	46	40	27	na	4.4	4.9	7.5	5.2	na	432	433	446	392	na	146	148	163	143	na
Azerbaijan	29	32	29	23	na	3.5	4.7	4.2	1.8	na	281	293	292	250	na	134	155	143	125	na
Georgia	39	42	29	23 ³	na	7.8	9.1	8.2	6.6 ³	na	309	309	289	231 ³	na	135	148	140	112 ³	na
Lithuania	68	72	60	69	na	16.7	17.8	18.6	10.5	na	415	409	480	252	na	253	285	305	275	na
Latvia	66	74	73	66	na	23.4	23.8	22.5	18.0	na	403	455	454	427	na	259	295	259	240	na
Estonia	71	78	75	55 ³	na	24.9	24.6	24.0	21.0	na	453	489	487	409	na	305	296	289	260	na
Total FSU	50	54	59	56 ³	na	17.6	18.0	16.5	11.7 ³	na	314	325	358	331 ³	na	239	260	258	247 ³	na

na = not available.

¹ Excluding lard and edible fat. ² Including milk equivalent of butter. ³ Estimates.

Sources: *Vestnik statistiki*, No. 10, 1991; Goskomstat Rossii, 1992.

for sale at the free markets, where prices were not subsidized and thus were substantially higher.

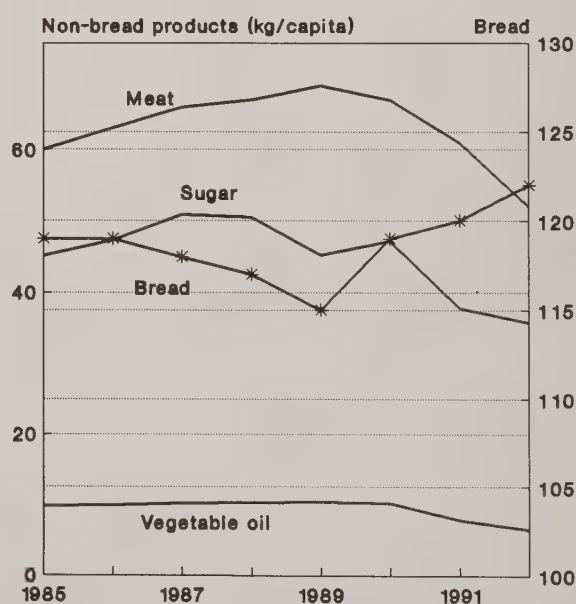
Animal Productivity Down Sharply Due To Poor Rations

In conjunction with declines in inventories, animal productivity, feeding efficiencies, and weight per animal at slaughter dropped significantly in 1992 in nearly all of the FSU. The use of mixed feeds deteriorated sharply last year as a result of the greatly reduced availability from the State and sharply higher cost. In addition, the protein content of the feed rations, always low, suffered further, significantly affecting output per animal. The long-standing, inefficient use of grain in livestock feeding worsened considerably in 1992 as farms greatly increased the amount of unprocessed grain fed to animals. This was partly a consequence of only 5 percent of Russian State and collective farms having equipment to process concentrated feeds.⁸⁰

For the FSU, average milk output per animal fell 14 percent and eggs per layer were down 5 percent in 1992 from the previous year. On Russia's State and collective farms, output of milk per animal, which fell 7 percent in 1991, was down almost 13 percent in 1992 (figure 27). Eggs per layer, off 2 percent in 1991, decreased another 3 percent last year (figure 28). Annual weight gain of cattle in Russia in 1992 declined 14 percent, double the drop in 1991, and the average weight per animal sold to the State fell 4 percent (figure 29).

Figure 26

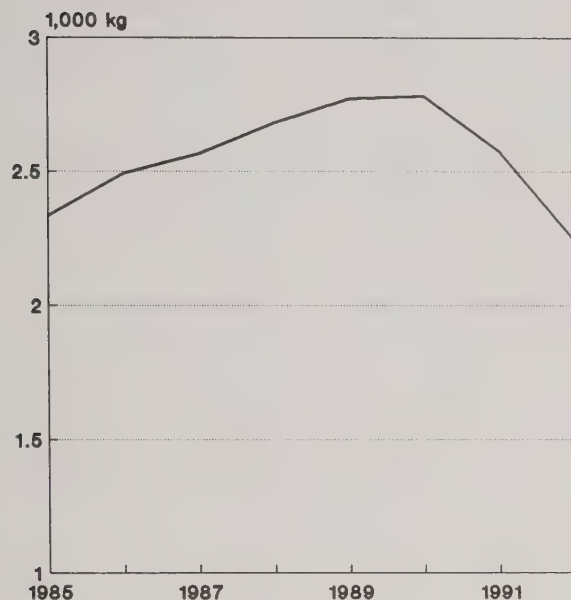
Per Capita Consumption of Foods, Russian Federation



1992 estimated.

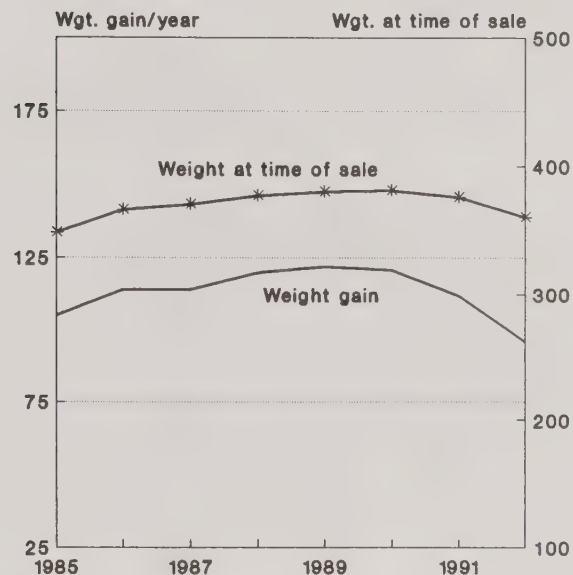
Source: Goskomstat Rossii.

Figure 27
Milk Output Per Cow, State
Sector, Russian Federation



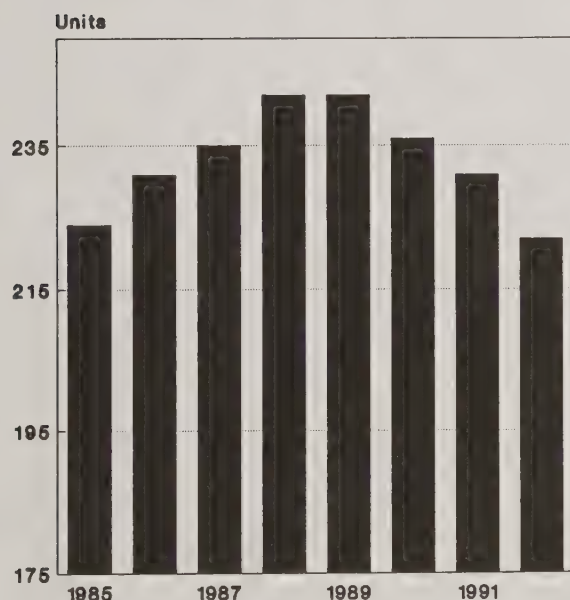
1992 preliminary.
Source: Goskomstat Rossii.

Figure 29
Cattle Weights Per Animal,
Russian Federation, State Sector



Weights are in kilograms.
1992 estimated.
Source: Goskomstat Rossii.

Figure 28
Eggs Per Layer, State Sector,
Russian Federation



1992 estimated.
Source: Goskomstat Rossii.

The drops in animal inventories, productivity, and finishing weight reduced output (from all types of farms) of meat (beef, pork, and poultry), milk, and eggs in the FSU in 1992 an average of 13 percent, 11 percent, and 12 percent (table 55). Russian production of meat fell 12 percent; milk, 10 percent; and eggs, 10 percent in 1992 from a year earlier (figures 30 and 31).

State's Role in Marketing Diminishes

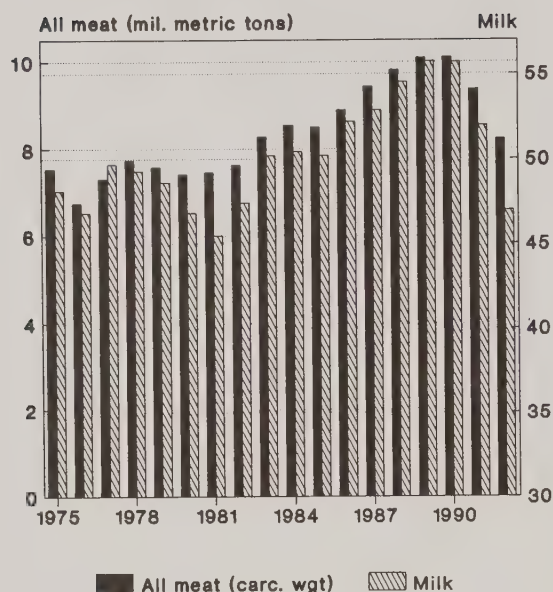
1992 witnessed a significant increase in sales of meat and dairy products through private channels, as farms cut back on sales to State enterprises. Instead of selling to the State at traditional levels, livestock producers chose to market more of their output themselves, used it to pay workers in kind, and bartered it. As a result, in 1992 more meat, about half of total sales, was marketed through non-State outlets. Russian 1992 State procurements of animals for slaughter (liveweight) and milk declined 22 percent and 24 percent from 1991 (figure 32).

Meat Imports Likely Down Further in 1993

Meat and dairy product imports from outside and within the FSU will likely continue to drop in 1993, as reduced consumer demand, hard currency constraints, concerns that domestic producers are being undercut, and disruptions in interrepublic trade restrain imports. As in 1992, foreign government credit packages, barter deals, and direct humanitarian food aid will account for most, if not all, meat imports from outside the FSU. Russia will remain the primary meat importer from all sources, with over three-quarters of the region's total. Following it are Uzbekistan, which accounts for about 10 percent of imports, Turkmenistan, and Georgia. Contractions in the livestock sectors of the Baltic republics, Belarus, Ukraine, Moldova, and Kazakhstan, will likely further reduce their meat exports to other republics in 1993.

According to CIS statistics, FSU meat and meat product imports in 1992 from outside and within the FSU were down substantially from 1991—just over 1 million tons compared with 1.8 million tons in 1991 (tables 56 and 57). Imports reportedly consisted of about 700,000 tons from beyond the

Figure 30

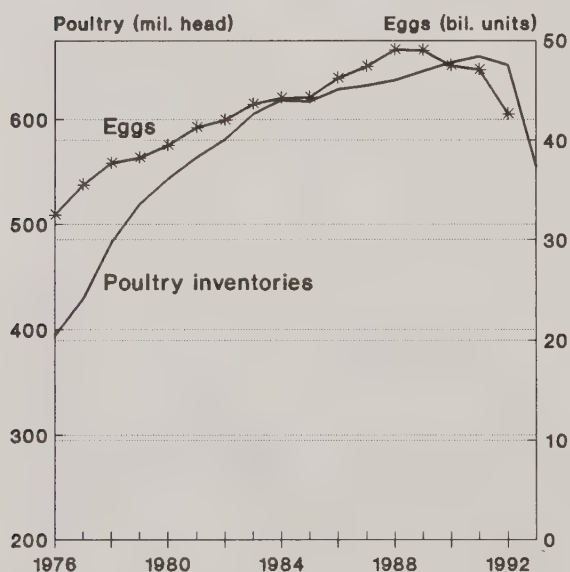
Meat and Milk Output,
Russian Federation

1992 preliminary.
Source: Goskomstat Rossii.

FSU and 400,000 tons of interrepublic trade. The corresponding numbers in 1991 were 1.1 million and 700,000 tons. Russia's 1992 meat and meat product imports, which accounted for about 10 percent of consumption, were reportedly about 800,000 tons, down almost 50 percent from 1991. About 500,000 tons, down 45 percent from 1991, came from outside the FSU, and 275,000, down about 50 percent from 1991, from other republics. Of total 1991 FSU meat exports involved in interrepublic trade, Ukraine accounted for one-third, Belarus, one-quarter, and Kazakhstan and the Baltics, nearly 20 percent each.

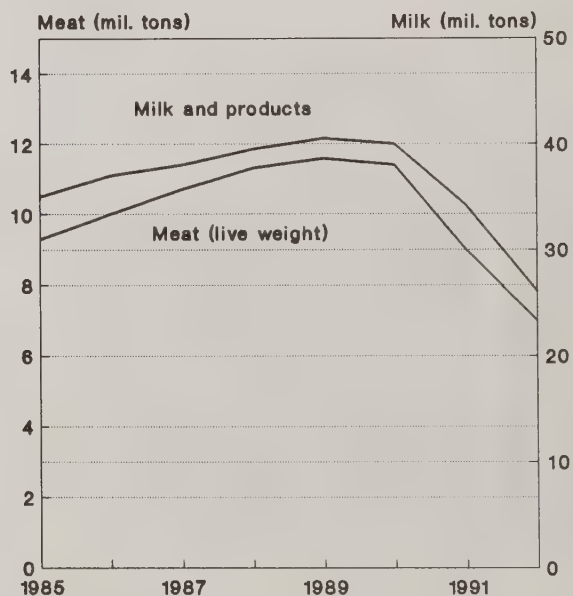
Exports of U.S. livestock products to the FSU in calendar year 1992 fell sharply from 1991, as the FSU curtailed its overall imports. U.S. meat exports in calendar year 1992 were 23,200 tons (96 percent poultry), down nearly three-quarters from 86,800 (96 percent poultry) in calendar 1991, due to changes in GSM-102 credit allocations which covered most, if not all, U.S. meat exports. Recently announced credits and food aid for poultry and pork sales to the FSU, will likely increase U.S. meat exports in calendar 1993. U.S. butter and dry milk exports rose from nothing in calendar year 1991 to about 55,000 tons in calendar 1992. The FSU's other major meat suppliers (non-FSU) include Eastern Europe, the EC, and China.

Figure 31

Poultry Inventories & Egg Output,
Russian Federation 1/

1992 and 1993 preliminary.
1/ All farms.
Source: Goskomstat Rossii.

Figure 32

Meat and Milk Procurements,
Russian Federation

1992 preliminary.
Source: Goskomstat Rossii.

Table 55—Production of livestock products from all farms, FSU and major republics

Year	Meat ¹						Milk	Wool ²	Eggs
	Total	Beef & veal	Pork	Mutton lamb & goat	Poultry	Other			
-----1,000 metric tons-----									
Former USSR									Millions
1980	15,073	6,645	5,183	849	2,139	257	90,899	443	67,943
1985	17,131	7,400	5,900	800	2,800	231	98,608	447	77,255
1988	19,680	8,616	6,595	960	3,235	274	106,754	478	85,150
1989	20,137	8,800	6,700	1,000	3,400	237	108,529	479	84,854
1990	20,011	8,814	6,646	1,008	3,286	257	108,384	475	81,725
1991 ³	18,300	8,000	6,000	975	3,100	225	100,800	na	79,200
1992 ³	15,900	na	na	na	na	na	89,500	na	69,500
Russian Federation									
1980	7,427	3,274	2,579	338	1,134	102	46,823	213	39,539
1985	8,513	3,575	2,978	321	1,532	107	50,196	217	44,277
1988	9,813	4,150	3,399	371	1,776	117	54,534	227	49,144
1989	10,082	4,256	3,499	385	1,831	111	55,742	230	49,024
1990	10,112	4,329	3,480	395	1,801	107	55,715	227	47,470
1991	9,375	3,989	3,190	347	1,751	98	51,971	205	47,132
1992	8,242	3,400	na	na	na	na	46,976	179	42,552
Ukraine									
1980	3,500	1,557	1,315	29	522	77	21,112	27.2	14,606
1985	3,918	1,740	1,436	35	636	71	23,039	28.7	16,645
1988	4,395	2,019	1,576	44	704	52	24,228	30.2	17,672
1989	4,430	2,011	1,595	44	731	49	24,377	30.1	17,393
1990	4,358	1,986	1,576	46	708	42	24,508	29.8	16,287
1991	4,029	1,878	1,421	40	654	36	22,409	26.6	15,188
1992	3,405	1,654	1,185	35	498	33	18,955	23.1	13,445
Kazakhstan									
1980	1,069	465	195	231	126	52	4,597	103.8	3,369
1985	1,133	506	185	221	159	62	4,763	97.0	3,803
1988	1,493	689	255	279	201	69	5,322	108.4	4,202
1989	1,573	727	273	289	210	74	5,563	109.9	4,233
1990	1,548	717	275	292	202	62	5,642	107.9	4,185
1991	1,524	709 ³	279 ³	291 ³	200 ³	45	5,555	104.4	4,075
1992	1,258	na	na	na	na	na	5,231	93.3	3,542
Belarus									
1980	857	411	350	3.9	87	5	6,105	1.1	3,035
1985	1,032	470	424	8.0	124	6	6,759	1.2	3,363
1988	1,180	573	458	8.9	133	7	7,460	1.2	3,572
1989	1,195	582	455	8.7	142	7	7,419	1.1	3,651
1990	1,181	586	438	8.2	142	7	7,457	1.0	3,657
1991	1,065	530 ³	390 ³	7.0 ³	130 ³	8	6,812	1.0 ³	3,718
1992	964	na	na	na	na	na	5,894	na	3,417
Baltic States									
1980	902	361	443	10	85	3	5,388	0.9	2,231
1985	1,045	427	502	12	101	3	6,190	0.9	2,524
1988	1,117	452	533	10	117	5	6,472	0.8	2,846
1989	1,094	428	528	10	125	3	6,488	0.8	2,821
1990	1,058	436	494	9	118	1	6,258	0.6	2,645
1991	934	396 ³	416	9 ³	107 ³	6	5,750	0.7	2,556
1992	na	na	na	na	na	na	na	na	na

na = not available.

¹ Carcass weight, including fat. ² Physical weight. ³ Estimates.

Source: Statkom SNG.

**Table 56--Import and export of meat and meat products (including interrepublic trade),
FSU republics, calendar year 1991**

Imported by:	Exported from:								Imports		
	Russian Fed.	Ukraine	Belarus	Moldova	Kazakhstan	Lithuania	Latvia	Estonia	FSU ¹	Non-FSU	Total
<i>Metric tons</i>											
Russian Fed.	x	193,246	164,948	29,176	33,795	81,916	30,604	22,263	555,956	922,961	1,478,917
Ukraine	5,801	x	--	543	--	3	533	35	6,946	3,080	10,044
Belarus	1,437	115	x	--	--	613	--	--	2,167	43	2,210
Moldova	--	36	--	x	--	--	--	--	36	--	36
Kazakhstan	168	13	524	--	x	--	--	--	705	7,024	7,729
Uzbekistan	708	3,773	379	--	73,561	--	--	--	78,421	68,886	147,307
Kyrgyzstan	240	--	--	--	1,588	--	--	--	1,828	--	1,828
Tajikistan	95	--	--	--	5,316	--	--	--	5,411	12,808	18,219
Turkmenistan	116	1,579	--	--	17,206	--	--	--	18,901	22,200	41,101
Armenia	103	4,235	68	--	--	--	--	--	4,406	--	4,406
Azerbaijan	292	19,177	--	--	3,408	--	--	--	22,877	25,243	48,120
Georgia	351	4,618	--	--	162	--	--	--	5,131	--	5,131
Lithuania	--	40	--	--	--	x	--	--	40	--	40
Latvia	157	5	--	--	--	--	x	--	162	--	162
Estonia	25	23	--	--	--	--	--	x	48	--	48
Exports to:											
FSU	9,493	226,860	165,919	29,719	135,036	82,532	31,137	22,298			
Non-FSU	4,261	70	974	--	528	--	--	--			
Total	13,754	226,930	166,893	29,719	135,564	82,532	31,137	22,298			

-- = negligible or none.

¹ Includes imports from all 15 former USSR republics.

Sources: *Strany--chleny SNG statisticheskii ezhegodnik*, 1992.

**Table 57--Import and export of milk and milk products (including interrepublic trade),
FSU republics, calendar year 1991**

Imported by:	Exported from:								Imports		
	Russian Fed.	Ukraine	Belarus	Moldova	Kazakhstan	Lithuania	Latvia	Estonia	FSU ¹	Non-FSU	Total
<i>Metric tons</i>											
Russian Fed.	x	620,511	776,214	48,923	948	743,775	285,310	233,289	2,709,155	3,533,634	6,242,789
Ukraine	8,817	x	492	469	--	330	445	678	11,321	12,422	23,743
Belarus	838	2,636	x	--	--	--	--	--	3,474	5,396	8,870
Moldova	224	9,281	460	x	--	--	--	--	9,965	--	9,965
Kazakhstan	15,505	40,967	35,258	--	x	--	--	--	91,730	7,813	99,543
Uzbekistan	9,293	103,815	332,697	--	--	--	--	--	458,087	129,896	587,983
Kyrgyzstan	6,820	7,011	17,068	--	--	12,282	--	--	30,899	25,798	56,697
Tajikistan	4,915	9,056	1,050	--	--	--	--	--	15,821	109,160	124,981
Turkmenistan	8,089	10,390	86,615	--	--	--	--	--	105,094	83,096	188,190
Armenia	9,611	129,200	3,514	--	--	--	--	--	142,325	--	142,325
Azerbaijan	6,146	282,871	30,262	--	--	20,065	--	--	340,268	392,320	732,588
Georgia	7,203	74,078	2,097	--	--	--	--	--	102,198	--	102,198
Lithuania	40	762	781	--	--	x	--	--	1,583	--	1,583
Latvia	3,565	1,139	1,414	--	--	--	x	--	6,118	--	6,118
Estonia	--	717	429	--	--	--	--	x	1,146	--	1,146
Exports to:											
FSU	81,066	1,292,434	1,288,351	49,392	948	776,452	285,755	233,967			
Non-FSU	14,414	7,462	4,810	--	--	--	--	--			
Total	95,480	1,299,896	1,293,161	49,392	948	776,452	285,755	233,967			

-- = negligible or none.

¹ Includes imports from all 15 former USSR republics.

Sources: *Strany--chleny SNG statisticheskii ezhegodnik*, 1992.

Little Improvement Seen in FSU Oilmeal Supplies

Little if any increase in overall FSU oilmeal supplies is expected in 1993/94, which means the region's substantial protein imbalance in livestock feeds and low feeding efficiencies will not be alleviated. Despite recurring calls for boosting oilseed output, only small increases in oilseed production (mainly sunflowerseed and cottonseed) are likely in the near-to-mid term. Moreover, given continued hard currency constraints, the role imports play in redressing protein meal shortfalls may lessen. [Jaclyn Y. Shend, Sharon S. Sheffield, Christian J. Foster]

Total FSU oilseed production in 1993 may increase slightly, as yields rebound with a more favorable weather outlook. In 1992, total oilseed output fell about 10 percent, and was about 15 percent lower than the 1986-90 average (table 58). Lower cottonseed production in Central Asia and smaller output of sunflowerseed in Ukraine accounted for most of the drop in 1992. However, increased sunflowerseed production in the Russian Federation, Moldova, and Kazakhstan offset this decline to some degree. Oilseed output fell mainly because of reduced yields, while total oilseed area remained relatively unchanged. The yields fell largely as a result of poor weather conditions which delayed the harvest. The role of lower application of high cost mineral fertilizers, pesticides, and herbicides is difficult to measure, but may be more significant for input-intensive oil crops than for grains.

Increased Sunflowerseed Area Offsets Falling Yields in 1992

Sunflowerseed is the main oil-producing crop in the FSU, with 95 percent of output concentrated in the Russian Federation and Ukraine (figures 33 and 34). In 1993, FSU sunflower production might slightly increase from the 1992 level of about 5.7 million metric tons, as more favorable weather contributes to better yields. Output in 1992 was slightly higher than in 1991, though almost 10 percent below the 1986-90 average. Even though 1992 area rose about 10 percent, sunflowerseed output increased only marginally due to low yields (table 59). In 1991, the profitability of sunflowerseeds rose substantially in both Russia and Ukraine, which may have given farmers an incentive to increase the area for 1992 harvest.

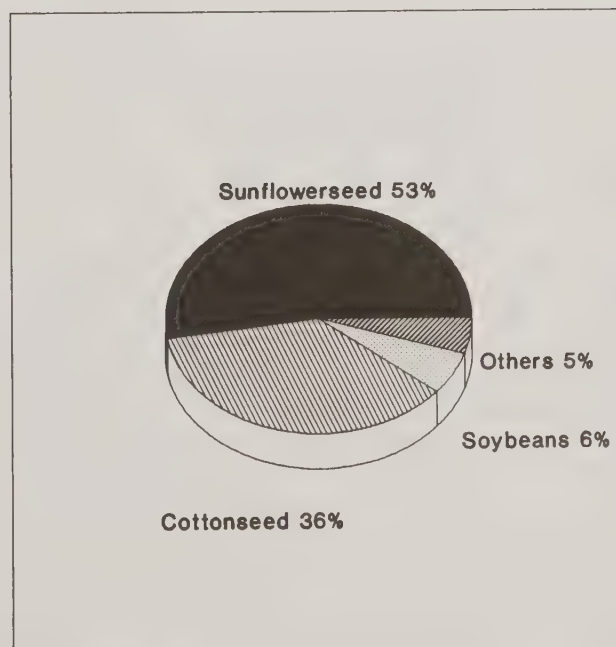
Output in the **Russian Federation** in 1992 was 3.1 million tons, up 6 percent from a poor 1991 crop, but considerably lower than the 1990 bumper crop, and slightly below the 1986-90 average. Output rose in 1992 because of a large increase in area, which offset the fall in yields.

The 1992 Russian sunflowerseed yield of 1.07 tons per hectare was even lower than 1991's poor yield of 1.12, and 15 percent below the 1986-90 average. Reduced use of inputs because of higher prices likely depressed yields (figure 35). Rainy weather in the fall of 1992 lowered yields further by interrupting the harvest. Sunflowerseed is particularly sensitive

to harvest disruptions and delays, which can cause considerable losses in yield. In recent years, even in the main areas of sunflowerseed production (central Chernozem, Volga region, and North Caucasus), insufficient and inefficiently operated machinery and transport often stretches the harvest out to 13-19 days, and during wet years up to a month and a half.⁸¹

In 1992, Russian sunflower area rose 12 percent, to almost 20 percent above the 1986-90 average. However, 1993 sunflower area may fall slightly, because 1992 profitability dropped about 10 percent.⁸² Costs rose by a much greater percentage than procurement prices.

Figure 33
FSU Oilseed Production, 1992



1992 preliminary.
Source: Statkom SNG.

Table 58—Total oilseed area, yield, and production, FSU republics ¹

Republic	Average 1981–85	Average 1986–90	1986	1987	1988	1989	1990	1991	1992 ²
Area 1,000 hectares									
Russian Federation	3,428	3,668	3,163	3,593	3,755	3,823	4,007	3,917	3,938
Ukraine	1,750	1,782	1,662	1,737	1,806	1,855	1,851	1,785	1,942
Kazakhstan	341	382	322	367	429	405	387	425	461
Total FSU	8,832	9,369	8,686	9,374	9,598	9,604	9,584	9,162	9,000
Yield Tons per hectare									
Russian Federation	0.83	1.11	0.98	1.06	1.05	1.29	1.16	1.03	0.96
Ukraine	1.38	1.64	1.61	1.66	1.66	1.69	1.59	1.49	1.27
Kazakhstan	2.25	1.00	1.05	1.01	0.96	0.88	1.10	na	0.84
Total FSU	1.26	1.35	1.29	1.3	1.34	1.44	1.39	1.29	1.20
Production 1,000 tons									
Russian Federation	2,863	4,099	3,106	3,829	3,962	4,938	4,662	3,800	3,800
Ukraine	2,422	2,948	2,697	2,908	3,018	3,148	2,969	2,674	2,286
Kazakhstan	768	380	339	369	411	356	424	na	387
Total FSU	10,693	12,664	11,191	12,139	12,858	13,856	13,278	11,887	10,800

na = not available.

¹ Total oilseeds include sunflowerseed, flaxseed, soybeans, mustardseed, castor beans, safflowerseed, rapeseed, sesameseed, peanuts, and cottonseed. ² Estimates.

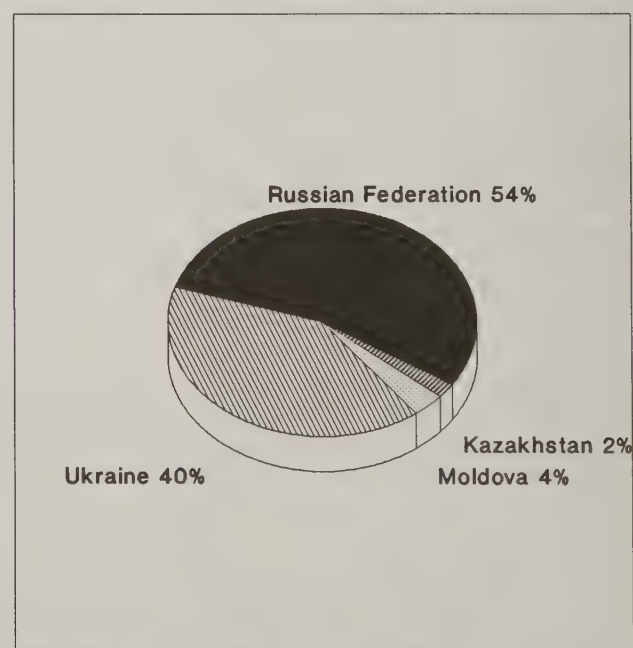
Sources: *Narodnoe khozyaistvo SSSR*, 1991; *Narodnoe khozyaistvo Rossiiskoy Federatsii*, 1992 and 1992; *Narodnoe khozyaistvo Ukrainy*, 1991 and 1992; *Statisticheskii ezhegodnik Kazakhstana*, 1991 and 1992.

In Ukraine, 1992 sunflower output fell for the third consecutive year and was 17 percent below the 1986-90 annual average. Slightly increased area in 1992 was offset by reduced sunflowerseed yields due to drought.

Cottonseed Output May Rise in 1993 Despite Falling Area

Cottonseed, the second largest oil crop in the FSU, is produced in Central Asia, Azerbaijan, and Kazakhstan. Uzbekistan accounts for about 60 percent of total FSU output (figure 36). Recent expansion in Central Asian cotton sales on the world market for hard currency could encourage farmers to increase yields and production for 1993 harvest. In 1992, however, output fell about 15 percent, because of a 4-percent decline in area and a 13-percent drop in yields (table 60). Yields fell, largely as a result of bad weather, reduced use of mineral fertilizers and pesticides, and insufficient availability of harvesting machinery. FSU cottonseed area in 1992 was about 15 percent below the 1986-90 average. Cotton area has been declining gradually since 1988, as farms have switched to grains and other food crops (figure 37). Cotton area may fall slightly again in 1993. Although the Central Asian countries are attempting to expand grain area to become more self-sufficient in food production, cotton remains important as an export commodity which earns hard currency.

Figure 34
FSU Sunflowerseed Production, 1992



Preliminary.
Source: Statkom SNG.

Table 59—Area, yield, and production of sunflower-seed, FSU republics

Republic	Average 1981-85	1986	1987	1988	1989	1990	1991	1992
Area 1,000 hectares								
Russia	2,328	2,112	2,377	2,438	2,565	2,739	2,576	2,885
Ukraine	1,560	1,498	1,536	1,577	1,615	1,636	1,601	1,630
Kazakhstan	101	96	104	122	131	137	190	297
Moldova	138	129	126	127	129	134	127	145 ¹
Georgia	12	10	10	12	14	13	12	12 ¹
Total FSU	4,142	3,848	4,156	4,280	4,460	4,665	4,512	4,975 ¹
Yield Tons per hectare								
Russia	1.00	1.12	1.27	1.21	1.47	1.25	1.12	1.07
Ukraine	1.46	1.70	1.76	1.75	1.77	1.69	1.55	1.40
Kazakhstan	0.94	0.87	1.12	1.14	0.80	1.03	0.57	0.41
Moldova	1.81	1.96	1.66	2.12	2.18	1.88	1.34	1.34 ¹
Georgia	0.66	0.63	0.47	1.36	0.19	0.65	0.91	0.90 ¹
Total FSU	1.20	1.37	1.46	1.43	1.58	1.40	1.25	1.11
Production 1,000 tons								
Russia	2,323	2,363	3,067	2,958	3,789	3,427	2,895	3,073
Ukraine	2,287	2,561	2,716	2,775	2,885	2,725	2,448	2,277
Kazakhstan	94	83	117	139	105	141	108	122
Moldova	250	253	209	269	282	252	169	194
Georgia	8	6	5	17	3	9	10	10 ¹
Total FSU	4,974	5,272	6,118	6,164	7,070	6,559	5,635	5,680 ¹

¹ SNG estimate.

Sources: *Narodnoe khozyaistvo*, various republics, 1991;
Strany-chleny SNG statisticheskii ezhegodnik, 1992.

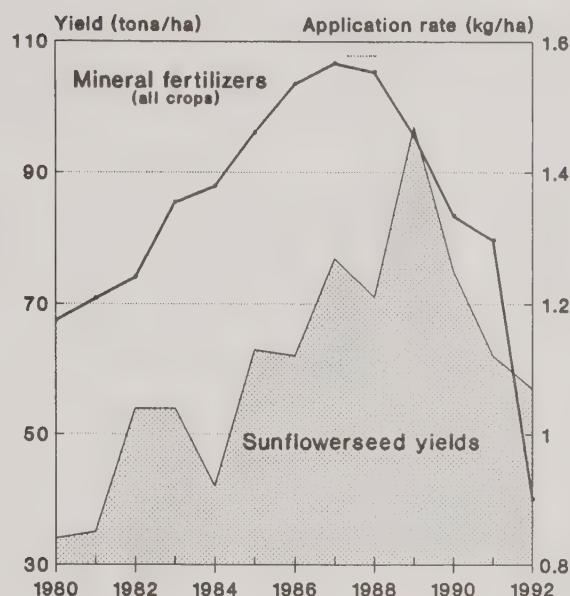
Russia Continues Effort To Boost Soybean Production

The Russian Federation accounts for about 75 percent of FSU soybean output, mainly in the Russian Far East. In 1993, total FSU soybean production may rise as Russia implements its new State program "Soya." The program's optimistic goal is to triple soybean production in Russia by 1995 through expansion of area. It also contains plans to improve facilities for processing soymeal and oil. The Assoya Company of Krasnodar in southern Russia, the Amursoya Company of the Russian Far East, and the Far Eastern Innovation Fund will reportedly receive funding and concessions to set up soybean production and processing in the Krasnodar and Amur regions. The program intends to partly alleviate the severe shortage of protein in animal feed in the republic.⁸³ In 1992, however, soybean production in both Russia and Ukraine was substantially down from the prior year, mainly as a result of depressed yields (table 61).

Reduced Oilmeal Output Worsens Protein Imbalance

Further reductions in FSU output and imports of oilmeal in 1992/93 from 1991/92 exacerbated the region's persistently low share of protein feed in animal rations. According to

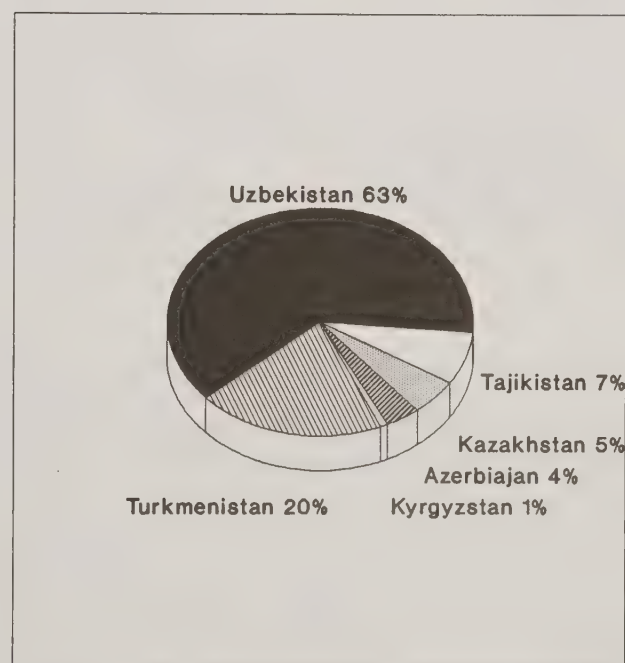
Figure 35
Fertilizer Application & Sunflowerseed Yields, Russian Federation



1992 estimated.

Source: Statkom SNG.

Figure 36
FSU Cottonseed Production, 1992



Preliminary.

Source: Statkom SNG.

FSU estimates, the difference between the current level of oilmeal in feed rations and the optimal level is equal to 10-15 million tons of protein in soybean meal equivalent (sbme).

Total output of oilmeal in the FSU in calendar year 1992 is estimated to be slightly over 4 million tons (sbme), down somewhat from calendar 1991. Output of oilmeal in the

Table 60—Area, yield, and production of cottonseed, FSU republics ¹

Republic	Average							
	1981-85	1986	1987	1988	1989	1990	1991	1992 ²
Area 1,000 hectares								
Uzbekistan	1,931	2,054	2,108	2,020	1,970	1,830	1,712	1,667
Turkmenistan	533	650	633	636	633	623	602	570
Tajikistan	308	313	324	320	309	304	296	286
Azerbaijan	297	300	303	299	280	264	245	233
Kazakhstan	130	129	128	128	119	120	117	110
Kyrgyzstan	44	29	31	32	27	30	26	22
Total FSU	3,242	3,475	3,527	3,432	3,338	3,171	2,998	2,888
Yield Tons per hectare								
Uzbekistan	1.78	1.46	1.38	1.59	1.61	1.66	1.63	1.49
Turkmenistan	1.18	1.05	1.20	1.27	1.31	1.40	1.43	1.37
Tajikistan	1.64	1.77	1.62	1.81	1.79	1.66	1.66	1.01
Azerbaijan	1.74	1.57	1.38	1.24	1.25	1.23	1.32	0.85
Kazakhstan	1.40	1.55	1.46	1.52	1.59	1.62	1.49	1.34
Kyrgyzstan	1.19	1.40	1.41	1.49	1.65	1.64	1.43	1.42
Total FSU	1.54	1.42	1.38	1.52	1.54	1.57	1.56	1.36
Production 1,000 tons								
Uzbekistan	3,434	2,993	2,915	3,219	3,175	3,035	2,795	2,477
Turkmenistan	628	683	763	805	829	874	858	781
Tajikistan	504	553	523	578	553	505	492	289
Azerbaijan	517	470	418	370	349	326	324	198
Kazakhstan	181	200	187	195	189	194	174	148
Kyrgyzstan	52	41	44	47	44	49	37	31
Total FSU	4,988	4,940	4,850	5,214	5,140	4,983	4,680	3,924

¹ Cottonseed is an estimate derived by applying a 0.6 coefficient to seed cotton production.

² Preliminary SNG data.

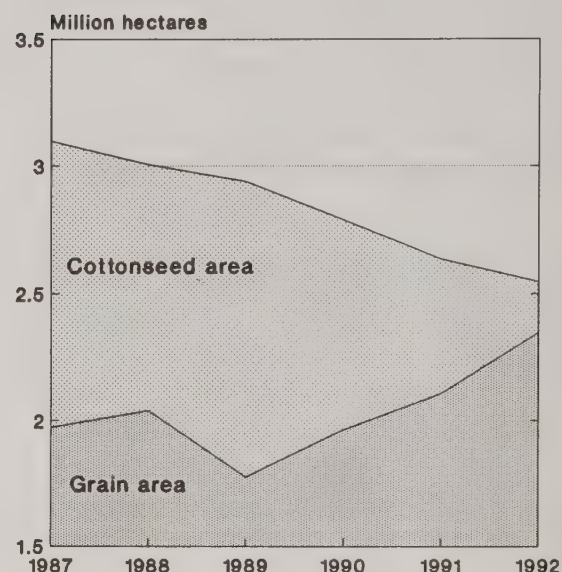
Sources: *Narodnoe khozyaistvo*, various republics, 1991; *Strany-chleny SNG statistichiskii ezhegodnik*, 1992.

Russian Federation rose about 8 percent in calendar 1992, to about 1.7 million tons (sbme). With 1992/93 oilmeal imports down significantly for Russia and the FSU as a whole, total oilmeal use may have fallen 20 percent or more.

The very low share of protein feed in rations continues to contribute to the region's high use of grain in livestock feeds and the very low FSU feeding efficiency and animal productivity levels. For the near term, limited potential to raise domestic output of oilmeal and continued constraints on meal imports due to hard currency problems will not allow the FSU to narrow its protein shortfall. As the State cuts back on imports to conserve hard currency, central authorities continue a decades-old pattern of apparently considering oilmeal more expendable than other commodities, such as grain.

FSU oilmeal/soybean imports over the long term could grow if the country moves toward a well-functioning and free-trading market economy. However, in the near-to-medium term, as was the case in Poland, reduced consumer demand for meat and excess domestic feed supplies could make grain and other

**Figure 37
Cottonseed and Grain Area,
Central Asia**



Central Asia: Uzbekistan, Turkmenistan
Tajikistan, Kyrgyzstan.
Source: Statkom SNG; 1992 estimated.

Table 61—Area, yield, and production of soybean, FSU republics

Republic	Average							
	1981-85	1986	1987	1988	1989	1990	1991 ¹	1992 ¹
Area 1,000 hectares								
Russia	685	612	619	598	651	675	664	645 ²
Ukraine	90	64	74	76	105	93	102	97 ²
Kazakhstan	13	31	38	28	25	23	18	22
Moldova	12	20	32	39	37	27	20	25
Georgia	16	12	12	12	10	8	6	6
Kyrgyzstan	3	1	2	3	2	2	1	1
Total FSU	814	745	783	760	830	830	812	800
Yield Tons per hectare								
Russia	0.57	0.94	0.87	1.13	1.13	1.06	0.94	0.78 ²
Ukraine	0.89	1.05	1.14	1.32	1.17	1.07	1.31	0.78 ²
Kazakhstan	0.95	1.10	1.20	1.47	1.34	1.44	1.44	1.72
Moldova	0.98	1.03	1.15	1.37	1.38	0.90	0.98	1.00
Georgia	0.32	0.64	0.57	0.56	0.56	0.44	0.52	0.50
Kyrgyzstan	1.25	1.91	2.05	1.77	2.22	1.74	1.63	1.50
Total FSU	0.62	0.95	0.92	1.16	1.15	1.06	1.00	0.81
Production 1,000 tons								
Russia	391	575	541	675	738	717	624	505 ²
Ukraine	80	68	85	101	124	99	135	76 ²
Kazakhstan	12	35	45	41	33	33	26	38
Moldova	12	20	37	53	51	24	20	25
Georgia	5	8	7	7	6	3	3	3
Kyrgyzstan	4	3	4	5	4	3	2	2
Total FSU	505	712	720	884	956	880	812	650

¹ Estimates except for Russia and Ukraine.

² Preliminary SNG data.

Sources: *Narodnoe khozyaistvo*, various republics, 1991; *Strany-chleny SNG statistichiskii ezhegodnik*, 1992.

Table 62—Vegetable oil production, FSU republics, calendar year

Republic	1970	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 ¹
<i>1,000 tons</i>														
Russian Federation	939	823	844	826	941	957	775	1,012	959	1,080	1,127	1,159	1,165	917
Ukraine	1,071	941	864	938	1,001	879	846	876	971	1,047	1,078	1,070	995	671
Belarus	22	15	9	13	17	16	20	19	21	23	25	26	25	8
Moldova	155	133	105	90	107	108	108	110	116	115	118	126	118	54
Kazakhstan	62	84	87	80	73	67	74	75	80	85	92	95	101	56
Uzbekistan	294	412	446	427	388	396	451	508	510	498	513	514	461	378
Kyrgyzstan	17	20	22	18	13	12	12	13	13	14	15	14	15	7
Tajikistan	69	95	96	92	87	84	88	91	92	92	93	80	76	47
Turkmenistan	37	39	48	58	71	81	88	94	97	107	108	104	104	85
Armenia	11	7	10	6	5	7	7	8	9	7	8	6	4	1.6
Azerbaijan	28	49	51	56	53	48	55	57	58	50	49	41	36	20 ²
Georgia	9	9	10	9	11	10	11	10	15	12	9	14	10 ²	7 ²
Lithuania	5	4	2	4	4	4	2.1	0.01	0.01	0.4	0.6	1.1	0.2	0
Latvia	22	19	14	12	13	8	8	9	9	12	13	14	10 ²	6 ²
Total FSU	2,784	2,650	2,606	2,629	2,782	2,676	2,545	2,882	2,950	3,142	3,249	3,264	3,120 ²	2,258 ²

¹ Preliminary SNG data. ² Estimates.

Sources: *Narodnoe khozyaistvo SSSR*, 1985 and 1990; *Strany—chleny SNG statisticheskii ezhegodnik*, 1992.

domestic feeds relatively cheaper despite their lower productivity, and thus curb demand for imported protein feed.

Total FSU vegetable oil supplies fell in 1992, as output and imports declined. FSU output of vegetable oil in calendar 1992 was down from 3.1 million tons in calendar 1991, with output of oil in Russia down about 20 percent, according to CIS statistics (table 62). Per capita consumption of vegetable oil also fell, as availability and consumer demand (due to substantial price hikes) decreased (table 63). Total FSU vegetable oil consumption in calendar 1992 fell to about 3.4 million tons, down about 10 percent from calendar 1991. In Russia, calendar 1992 vegetable oil consumption was about 1.7 million tons, one-half of total FSU consumption.

Part of the decline in State oilseed product output in calendar 1992 is the result of sharply reduced State procurement of oilseeds from producers, who have been holding more on farm for feeding and barter. In some cases, farms pay State enterprises a fee for crushing, but choose to have the vegetable oil returned to the farm to market itself. (The production of this vegetable oil may not be accounted for in State output.) In the Russian Federation, State procurements of sunflowerseed in 1992 fell 42 percent, and in Ukraine 25 percent. Unless inflation is brought under control this year, farms may turn over even less oilseeds to the State in 1993.

Little Change in 1993/94 FSU Oilseed Trade

FSU imports of oilseeds and oilseed products in 1993/94 are not expected to increase from 1992/93 due to hard currency constraints, slightly increased oilseed production, and declining livestock inventories. USDA estimates FSU-12 imports

Table 63—Annual per capita consumption of vegetable oil, FSU republics

Republic	1980	1985	1990	1991	1992 ¹
<i>Kilograms</i>					
Russian Fed.	9.1	9.8	10.2	7.8	6.5
Ukraine	10.0	10.6	11.6	11.2	10.8
Belarus	7.4	8.4	8.6	7.3	na
Moldova	10.0	12.3	14.1	11.6	na
Kazakhstan	7.8	9.8	10.9	9.0	na
Uzbekistan	10.4	11.2	12.6	13.6	na
Kyrgyzstan	7.4	9.1	10.6	8.7	na
Tajikistan	10.0	11.4	12.1	10.5	na
Turkmenistan	7.6	8.0	8.5	8.8	na
Armenia	2.7	2.4	3.1	1.6	na
Azerbaijan	2.5	3.1	2.5	0.6	na
Georgia	4.7	5.7	6.0	4.8 ¹	na
Lithuania	6.3	7.8	6.7	3.6	na
Latvia	8.8	8.8	7.8	3.8	na
Estonia	9.0	9.5	7.0	6.3	na
Total FSU	8.8	9.7	10.2	8.7 ¹	na

na = not available.

¹ Estimates.

Sources: *Vestniki statistiki*, No. 10, 1991; Goskomstat Rossii.

Table 64—Soybean, soymeal, and soyoil imports, FSU-12¹

Year ²	Soybeans	Soymeal	Soyoil
1,000 tons			
1988/89	660	3,510	187
1989/90	660	2,150	179
1990/91	600	2,594	175
1991/92	600	3,000	240
1992/93	400	1,600	135

¹ FSU-12 includes all republics of the former USSR except Lithuania, Latvia, and Estonia.

² Trade is on a October/September basis.

Source: USDA; estimates as of May 1993.

of total oilseeds in 1992/93 (October/September) at 455,000 tons, oilmeal at 1.62 million tons, and vegetable oil at 460,000 tons. Soybeans and soybean products make up most of FSU imports (table 64).

In the near term, total FSU agricultural imports are forecast down from previous levels, and grain imports are still expected to take precedence over other products. The longer-term outlook for oilseed and oilseed product exports to the FSU may be more positive. In the short-to-medium run, imports of oilseed meal, mostly soybean meal, will be preferred to oilseeds, because crushing facilities require modernization. Protein meals are needed to balance mixed-feed rations, which are composed of about 60-75 percent grain. FSU vegetable oil imports could increase in the short run, given insufficient domestic supply. However, declining per capita vegetable oil consumption may mitigate any increase in imports.

U.S. Holds Large Market Share of FSU Oilseed Imports

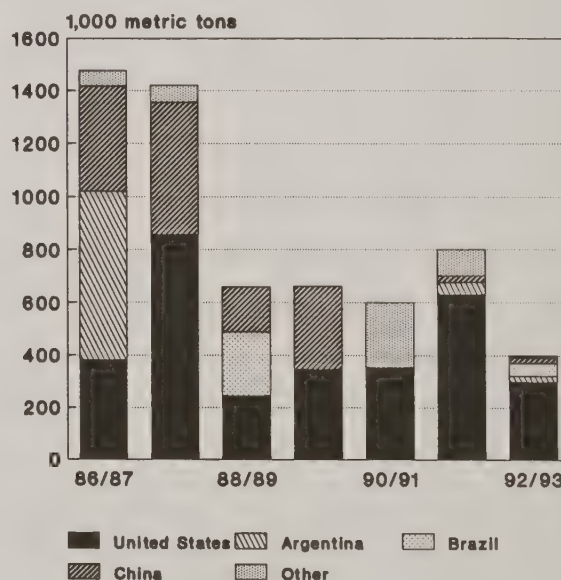
The United States remains the main exporter of oilseeds and oilseed products to the FSU (figures 38 and 39). The U.S.

market share is large for several reasons: the provision of credit guarantees and other loan programs, export enhancement subsidies for vegetable oils (soybean, sunflower, and cottonseed), and consistent supply. Other suppliers of oilseeds and oilseed products to the FSU include China (soybeans), and Argentina and Brazil (soymeal). However, the market share of these exporters has declined due to their inability to finance sales without credit guarantees.

The fiscal year 1993 allocation of GSM-102 credit guarantees for the purchase of U.S. oilseeds and oilseed products was lower than in previous years. The primary reasons for this are the ineligibility of most of the republics to directly receive GSM-102 credits and Russia's suspension from the program at the end of November 1992. In October 1992, Russia received \$40 million in GSM-102 credit guarantees to buy protein meal. In fiscal 1992, \$489 million in GSM-102 credit was allocated to the FSU-15 to purchase soybeans, protein meal, and vegetable oil; while Russia received its own credit line for \$142 million of protein meal and vegetable oil. During fiscal 1991, the United States provided the FSU with \$510 million in credit guarantees to buy U.S. soybeans, soy isolates, and soybean meal. USDA has offered EEP and Sunflowerseed Oil Assistance Program (SOAP) invitations since fiscal 1992 (table 65). Current balances on those programs are 150,000 tons of EEP and 80,000 tons of SOAP.

The United States also exported soybean meal and vegetable oil through P.L. 480 Title I concessional sales, Food for Progress, and Section 416(b) donations. During fiscal 1992,

**Figure 38
FSU-12 Soybean Imports
(October/September) 1/**



1/ Estimates, 1992/93 projection.
Source: USDA.

Table 65—EEP and SOAP allocations and sales, FSU

	Announced	Total program	Total sales	Avg. bonus	Balance ¹
<i>Metric tons</i>					
EEP ²	10/91	80,000	79,730	\$63.05	0
	5/92	150,000	6,580	\$51.26	0
	10/92	150,000	0	--	150,000
SOAP	11/91	30,000	30,000	\$96.21	0
	3/92	50,000	25,000	\$96.35	0
	10/92	80,000	0	--	80,000

-- = not applicable.

¹ Balance was terminated upon announcement of new program.

² All EEP sales were of soybean oil.

Source: USDA.

close to 100,000 tons of soymeal were sold to Belarus and Lithuania through P.L. 480 Title I loans. Over 6,500 tons of vegetable oil were donated through the fiscal 1992 Food for Progress program (CCC purchases) to Armenia, Belarus, Russia, and Tajikistan.

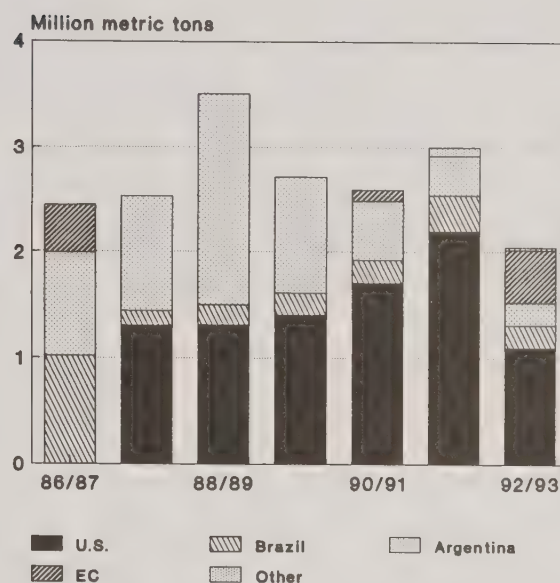
FSU Sugarbeet Production To Rebound

In 1992/93 sugarbeet output in the FSU republics as a whole fell, though in the Russian Republic it rose slightly. In 1993/94 sugar area, yields, and production are all projected to rise modestly. The upturn in output, along with reduced domestic demand, should lower sugar imports. [Yuri Markish and Jason M. Lamb]

USDA projects increased sugar production in the FSU republics as a whole in 1993/94, after declines in 1991/92 and 1992/93 (tables 66 and 67). The recent downward trend in output increased import demand, adding to the countries' already tight trade-financing position. Although sharp declines in real income have decreased the demand for sugar, the drop was insufficient to offset the fall in sugarbeet production. The expected rise in sugarbeet output and further contraction of demand in 1993/94 will lessen the former republics' demand for imports.

While area planted to sugarbeets stabilized in the past 2 years, a steep decline in fertilizer and pesticide use and aging machinery have contributed to decreased yields, production, and sugar content of beets in the FSU. In addition, the severe drought during 1992 in Ukraine, the FSU's largest sugarbeet grower, resulted in substantial declines in yield and production in the republic. Furthermore, difficulties in the sugar processing industry have led to low extraction rates from sugarbeets. The sharp increases in the prices of inputs have dampened demand for them. In fact, during 1992/93 in Ukraine,

Figure 39
FSU-12 Soymeal Imports
(October/September) 1/



1/ Estimates, 1992/93 projection.
Source: USDA.

less use and low quality of inputs, coupled with a frost during the harvest, reduced the sugar content of beets.

Import demand for sugar, especially cane sugar from Cuba, should remain fairly strong. However, the decreasing role government (namely the Russian Federation's principal trade organization, Prodimtorg) is playing in arranging barter trade between Cuba and the republics and the hard currency constraints faced in trade with other countries could inhibit imports in the short term. Historically, imports have supplied a little over one-third of the republics' sugar consumption. In 1992/93, though, because of a large decrease in output, the former republics collectively had to rely on imports (from beyond the FSU's borders) for about 50 percent of the sugar consumed domestically. Since the breakup of the Council for Mutual Economic Assistance, the republics have negotiated creative barter arrangements to import sugar.

In the past, 75 percent of FSU sugar imports came from Cuba in exchange for oil, food, and industrial products. Imports of Cuban sugar in 1992/93 are expected to provide only half of

Table 66-- Sugar balances (raw value), FSU republics, 1992/93

Country	Area	Yield	Sugar-beet output	Sugar prod. from beets	Raw (cane) & refined sugar imports	Domestic sugar supply	Exports of sugar	Net avail- ability	Estimated consump- tion	Popula- tion	Per capita consump- tion	Stock change
	1,000 ha	Tons/ha	----- Million tons -----							1,000	Kg/year	1,000 tons
Russian Fed.	1.43	17.8	25.5	2.600	3.000	5.600	0.080	5.520	5.400	150.733	35.8	120
Ukraine	1.48	20.9	31.0	3.800	0.400	4.200	1.600	2.600	2.500	52.637	47.6	100
Byelarus	0.05	21.6	1.1	0.110	0.370	0.480	--	0.480	0.472	10.386	45.4	8
Moldova	0.09	23.3	2.0	0.200	--	0.200	--	0.200	0.209	4.421	47.3	-9
Kazakhstan	0.08	16.3	1.3	0.125	0.515	0.640	--	0.640	0.557	17.086	32.6	83
Uzbekistan	--	--	--	--	0.580	0.580	--	0.580	0.548	21.305	25.7	32
Kyrgyzstan	0.006	16.7	0.1	0.010	0.131	0.141	--	0.141	0.145	4.529	32.0	-4
Tajikistan	--	--	--	--	0.110	0.110	--	0.110	0.110	5.532	20.0	0
Turkmenistan	--	--	--	--	0.120	0.120	--	0.120	0.115	3.851	29.8	5
Georgia	0.001	30.0	0.03	0.003	0.170	0.173	--	0.173	0.180	5.534	32.6	-7
Armenia	--	--	--	--	0.070	0.070	--	0.070	0.080	3.500	22.9	-10
Azerbaijan	--	--	--	--	0.250	0.250	--	0.250	0.246	7.224	34.0	4
Lithuania	0.03	21.9	0.7	0.060	0.060	0.120	--	0.120	0.114	3.775	30.2	6
Latvia	0.02	19.0	0.4	0.035	0.070	0.105	--	0.105	0.119	2.710	44.0	-14
Estonia	--	--	--	--	0.062	0.062	--	0.062	0.062	1.600	39.0	0
Total FSU	3.19	19.5	62.1	6.943	5.908	12.851	1.680	11.171	10.857	294.823	36.8	314

-- = negligible or none.

Note: In this balance, production of sugar from the 1992 beet crop is associated with 1992/93 consumption and trade data, estimated by USDA. Data for interrepublican and foreign trade is estimated, based on preliminary (January 1993) CIS sugar balance of the International Sugar Organization and CIS publications.

Marketing year is October/September.

Sources: *Ekonomika i zhizn*, No. 4, January 1993; *Zemlya i lyudi*, No. 5, January 1993.

Table 67 -- Sugar balances (raw value), FSU republics, 1993/94 ¹

Country	Area	Yield	Sugar-beet output	Sugar prod. from beets	Raw (cane) & refined sugar imports	Domestic sugar supply	Exports of sugar	Net availa- bility	Estimated consump- tion	Popula- tion	Per capita consump- tion	Stock change
	1,000 ha	Tons/ha	----- Million tons -----							1,000	Kg/year	1,000 tons
Russian Fed.	1.45	20.7	30.0	2.600	2.500	5.100	0.100	5.000	5.200	151.035	34.4	-200
Ukraine	1.48	25.0	37.0	4.350	0.300	4.650	2.300	2.350	2.350	52.821	44.5	--
Belarus	0.06	21.7	1.3	0.130	0.250	0.380	--	0.380	0.402	10.407	38.6	-22
Moldova	0.09	22.2	2.0	0.200	--	0.200	--	0.200	0.178	4.430	40.2	22
Kazakhstan	0.08	18.8	1.5	0.160	0.300	0.460	--	0.460	0.460	17.171	6.8	--
Uzbekistan	--	--	--	--	0.450	0.450	--	0.450	0.450	21.518	20.9	--
Kyrgyzstan	0.02	15.0	0.3	0.030	0.120	0.150	--	0.150	0.149	4.574	32.6	1
Tajikistan	--	--	--	--	0.110	0.110	--	0.110	0.110	5.587	19.7	--
Turkmenistan	--	--	--	--	0.090	0.090	--	0.090	0.093	3.890	23.8	-3
Georgia	0.002	25.0	0.05	0.005	0.150	0.155	--	0.155	0.154	5.545	27.7	1
Armenia	--	--	--	--	0.070	0.070	--	0.070	0.070	3.507	20.0	--
Azerbaijan	--	--	--	--	0.190	0.190	--	0.190	0.186	7.296	25.5	4
Lithuania	0.03	25.0	0.75	0.075	0.025	0.100	--	0.100	0.100	3.785	26.4	--
Latvia	0.02	20.0	0.40	0.035	0.055	0.090	--	0.090	0.090	2.715	33.0	--
Estonia	--	--	--	--	0.045	0.045	--	0.045	0.047	1.603	29.2	-2
Total FSU	3.24	22.6	73.3	7.585	4.655	12.240	2.400	9.840	10.039	295.884	33.9	-199

¹ USDA projection.

-- = negligible or none.

Note: In this balance, production of sugar from the 1992 beet crop is associated with 1992/93 consumption and trade data, estimated by USDA. Data for interrepublican and foreign trade is estimated, based on preliminary (January 1993) CIS sugar balance of the International Sugar Organization and CIS publications.

Marketing year is October/September.

Source: USDA.

total imports and should fall further in 1993/94. The republics have benefitted, though, from putting a stop to paying above-world-market prices for Cuban sugar. Cuban sugar has to compete with imports from new trading partners: the EC, China, India, and Brazil. For example, in 1992 Chinese exports of refined sugar to Russia equalled about 500,000 tons, to Kazakhstan, 150,000 tons, and to Ukraine, 37,000 tons.

Sugarbeet procurement prices and retail sugar prices vary greatly among the republics. Each country's government sets mandatory prices and crop procurement shares for sugarbeets. In Ukraine, where mandatory sales to the State remain high, the procurement price is relatively low. On the other hand, Russia, with a lower mandatory State procurement share, must offer producers a higher price.

Per capita consumption of sugar in the republics during 1993/94 is expected to continue its 3-year decline to 30 kilograms (white value). In 1992/93, the estimate is 34 kilograms (white value), down 6 percent from the previous year and 18 percent from 1990/91 (table 68). The increase in retail sugar prices and decrease in real income are the two major causes of this decline.

Russian Sugar Production Stabilizes

Although FSU sugarbeet production as a whole declined in the 1992/93 marketing year (October/September), Russian output increased slightly. Area planted to sugarbeets in

1993/94 is expected to be about 1.45 million hectares, up from 1.43 million planted in 1992/93. While 1992/93 area is lower than in the 1980's, it is near the 31,000 hectares of 1991/92. Sugarbeet yields also showed some signs of recovery, rising from 17.4 tons per hectare in 1991/92 to 17.8 in 1992/93. These increases in area planted and yield raised output in 1992/93 to 25.5 million tons, and with the expectation of better weather growth is expected to continue in 1993/94. While production increased in 1992/93, State procurement of sugarbeets plummeted to 10.9 million tons, 41 percent of output compared to 77 percent a year ago.

In the 1992/93 sugar marketing year, producers are obliged to sell to the State only one-fourth of all sugarbeets harvested, not most of their crop as in the past. In 1993/94 the State is expected to purchase only 7.6 million tons of beets, about 30 percent less than in 1992/93.⁸⁴ Therefore, for the first time in decades, farmers are able to dispose of a large part of their harvest independently. Producers will likely sell the three-fourths of output not under State control on the free market, or directly to processing plants. As a rule producers deliver beets to the refineries on the condition that they receive back about 70 percent of all sugar produced, for use in bartering for inputs.

The Russian Ministry of Agriculture (MOA) has raised the average procurement price for sugarbeets for the 1993 harvest to a level 160 percent higher than the price in 1992. The MOA believes that this price level corresponds to the free market wholesale price. However, farmers disagree and are pushing the MOA to increase the price or offer subsidies.⁸⁵

Processed sugar prices rose sharply at the retail level and on the commodity exchanges. In November 1992, the average retail price of 1 kilogram of State-processed granulated sugar sold in State stores for 104 rubles (about \$0.24), but cost 141 rubles (about \$0.33) on the free market. By February 1993, the respective prices had increased to 183 rubles (about \$0.33) and 243 rubles (about \$0.44).⁸⁶ Likewise, from December 1991 till January 1993, prices on the commodity exchanges for granulated sugar in the Russian Federation increased by over 280 percent.⁸⁷

Sugarbeet processing is perhaps the weakest link in the Russian sugar complex. Ninety-five of the 321 sugar processing plants in the FSU republics are located in Russia. Most of them are operating with obsolete, aging equipment. Only 65 percent of beet sucrose content is extracted in Russian factories, compared to about 85 percent in Western Europe and the United States. Additionally, because of low processing capacity, delays for delivered raw output can extend to half a year, which contributes to annual losses of 300,000 tons of sugar. Analogous losses in the United States are estimated to be six-eight times less. To avoid these delays, beets are often sent for processing hundreds of miles away, increasing the cost of production, decreasing the sucrose extraction rate, and complicating the distribution of the final product. Finally, spare parts for sugarbeet farming and processing equipment often have to be obtained from beyond the republic, and therefore cannot be guaranteed. For example, the only place in the FSU where beet harvesting combines are produced is in Ternopol, Ukraine.

Table 68—Annual per capita consumption of sugar, FSU republics

Republic	1980	1985	1990	1991	1992 ¹
<i>Kilograms</i>					
Russian Fed.	46.7	45.1	47.2	37.8	33.0
Ukraine	51.8	46.5	52.8	50.0	43.8
Belarus	43.3	44.5	48.7	41.6	na
Moldova	47.0	44.9	48.9	41.2	na
Kazakhstan	38.4	37.1	38.9	26.0	na
Uzbekistan	21.8	21.8	24.9	21.8	na
Kyrgyzstan	32.8	31.9	36.7	36.2	na
Tajikistan	24.1	25.5	27.9	21.8	na
Turkmenistan	26.5	27.5	30.0	24.6	na
Armenia	31.0	28.7	38.9	23.4	na
Azerbaijan	39.7	36.8	36.4	25.6	na
Georgia	44.8	43.5	39.1	31.2 ¹	na
Lithuania	41.2	43.5	40.1	28.7	na
Latvia	46.3	46.8	48.1	40.5	na
Estonia	46.0	44.7	44.5	36.1	na
Total FSU	44.4	42.2	44.9	37.8 ¹	na

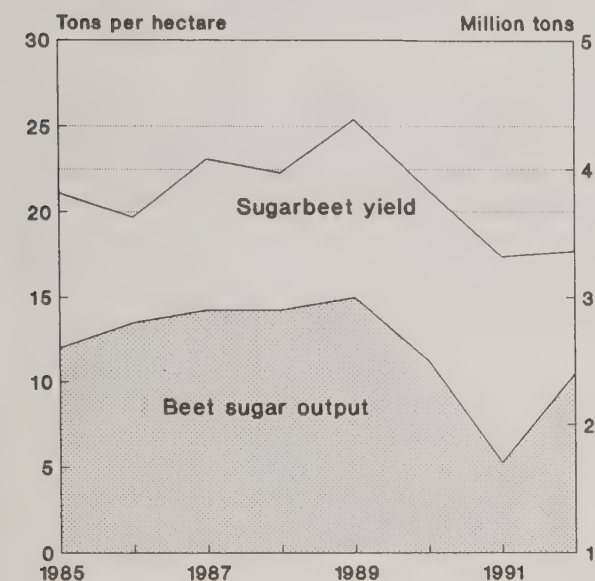
na = not available.

¹ Estimates.

Source: *Vestnik statistiki*, No. 10, 1991.

Figure 40

Sugarbeet Yield and Beet Sugar Output, Russian Federation 1/



1992 estimated.

1/ Calendar year.

Source: Goskomstat Rossii.

Russian per capita consumption of sugar in 1992/93 declined an estimated 13 percent from 1991/92 and is expected to continue to drop in 1993/94. A fall in real income, rising sugar prices, and sporadic regional sugar shortages due to interrepublic trade interruptions were the main causes.

According to Russian statements, sugarbeet output in 1993/94 is forecast to rise 18 percent to 30 million tons. Russian beet sugar production in 1992/93 is estimated at 2.4 million tons (2.6 million tons raw value), with imports (including from other republics) at 3.0 million tons (figure 40). Total supplies available for consumption in 1992/93 should be about 5.6 million tons.

Despite the increase in sugarbeet production in the Russian Federation, total import demand for 1993/94 is expected to remain strong at about 2.5 million tons, including 1 million from Ukraine.⁸⁸ After the breakup of the Soviet Union and the demise of the CMEA, member countries had to reexamine their terms of trade. Consequently, trade ties between Russia and Cuba, Russia's main source of imported sugar, were reexamined. Until 1990, trade of oil for sugar between the FSU and Cuba was brisk, with the republics (mainly Russia) importing between 3 and 4 million metric tons of sugar.

The terms of trade during this period heavily subsidized Cuban sugar production, with the FSU often paying much more than the world market price for Cuban sugar. But in 1991, trade between the FSU and Cuba was disrupted because of the price of Cuban sugar. At \$800 per ton, the former USSR was paying Cuba for its sugar about 4 times the price paid for sugar imported from other countries. Consequently, the FSU renegotiated its terms of trade. The result was a drop in Cuban exports of sugar to the republics in 1992 from 1991, such that Russian imports of Cuban sugar fell below 3 million metric

tons. As a result, in 1992, Russia and Cuba renegotiated their terms of trade to continue barter agreements carried out at world market prices for sugar and oil. This new settlement should allow for easier transfer of goods, but will not likely increase Russian imports of Cuban sugar to previous levels. Many sugar importers no longer negotiate through the Russian Government, but work independently. Therefore, as the Russian Government's role in sugar procurement diminishes, other countries, besides Cuba, will likely benefit with more sugar exports to Russia and the other republics. Still, Cuba should remain the republics' main sugar supplier.

Several Western and Russian trading companies have changed their policies to increase their share in the Russian market. The French trading house Sucres et Denrees allows more flexible payment schemes and barter agreements, such as ruble payments for sugar and long-term supply agreements with refiners of raw sugar for repayments with a portion of their finished product.

Ukrainian Sugar Production Falters

Historically, Ukraine was the only FSU republic to meet its own sugar demand. It normally produces 1.5 times as much as Russia and has been a large supplier within the FSU. Area planted to sugarbeets has been declining since 1987, with the sharpest drop in the last 2 years. According to Ukrainian sources, area harvested in 1993/94 should be the same as in 1992/93, about 1.48 million hectares. The 1981-85 area planted to sugarbeets in the Ukraine averaged close to 1.7 million hectares. During 1992/93, some sugarbeets were not harvested because of local shortages of fuel. As in the other republics, sugarbeet yield has also plummeted. However, in 1993/94, it is expected to rise from the drought-caused yield of nearly 21 tons per hectare in 1992/93. Ukrainian sugarbeet output was only 31 million tons in 1992/93, down from a high of 51.9 million tons in 1989/90. With an expected return to average weather in 1993/94, sugarbeet yields and production should increase.

Ukrainian sugar production in 1993/94 may be about 4.4 million tons, with about 2.4 million for domestic consumption and the remainder available for export. However, farmers' dissatisfaction with current price and procurement policies, including rising prices for inputs that reduce use in production could hinder this recovery. During 1992/93, mandatory State purchases of sugarbeets remained at the previous year's level of 70 percent, stifling initiative among producers. As a result, the State continues to distribute most sugar supplies. In 1992, the government paid 2,340 rubles per ton of beets purchased, and, in addition, returned to producers 150 kilograms of sugar for every ton processed by the State.⁸⁹ Farmers used this processed output to barter for fuel, equipment, spare parts and construction materials.

From a relatively high 3.5 million tons of sugar exported to the other republics in 1988/89, exports from Ukraine to other republics have declined substantially. In 1992/93, Ukrainian net sugar exports were estimated at 1.2 million tons. Projected net exports to the other republics could rebound to about 2.0 million tons, provided they could pay for the sugar. For example, large importing Russian cities, such as Moscow and

St. Petersburg, are unable to pay for 14,000 tons in sugar deliveries made in 1992.

Belarus

Sugar production in **Belarus** during 1993/94 is expected to increase slightly, as it did in 1992/93. From 1985/86 to 1991/92, area planted decreased, but has since risen slightly and should continue its slow growth. As in other republics in 1992/93, the quantity of inputs used in production fell. Sugar supplies in Belarus during 1992/93 reached 480,000 tons, including 110,000 tons from domestic output and 370,000 tons of imports. During 1992, farmers were reluctant to sell their sugarbeets to the State because the procurement price of 5,000 rubles per ton was too low. They demanded

8,000 rubles per ton, equivalent to about 100 rubles per kilogram of processed output. This high price makes imports more attractive as they are about 30 percent cheaper.⁹⁰ Belarus imported 200,000 tons of sugar from China during 1992/93.

Kazakhstan

Sugarbeet production in Kazakhstan rose sharply in 1992/93 to 1.3 million tons and should continue to grow in 1993/94. Beet sugar output in 1992/93 was about 125,000 tons, 70 percent more than in 1991/92. Raw sugar imports equalled 515,000 tons. Area almost doubled from an annual average of 45,000 hectares in the last four years to 80,000 hectares in 1992/93. Farmers continue to add new land to sugarbeets, which should fuel the increase in output further.

Cotton Continues Its 4-Year Decline

Cotton output in the republics of Central Asia fell in 1992/93 for the fourth straight year. Area, yield, and production all dropped.

Environmental concerns and reaction against the cotton monoculture of the last few decades favor reducing cotton production, while cotton's ability to earn hard currency through export favors maintaining output levels. [Yuri Markish and Jason M. Lamb]

In the cotton-producing republics of Central Asia, certain forces are at work to expand the size of the cotton economy, while other forces are at work to reduce it. The large cotton monoculture has caused serious environmental damage. Salinization of soil continues to be a major problem in the arid regions of Central Asia. Irrigation water tends to be brackish, leaving salt deposits on the surface. Heavy use of agrochemicals further hurts the land.

Another effect of expanding cotton production at the expense of foodstuffs is that the region has lost its traditional balance of agricultural output. If countries have free-trading and well-functioning market systems, they should not have to worry about agricultural self-sufficiency. Rather, they can specialize according to comparative advantage. Yet, the disruption in interrepublic trade following the breakup of the Union has exposed the Central Asian countries' vulnerability from cotton specialization. Both of these reasons favor moving away from cotton and toward greater self-sufficiency in foodstuffs.

On the other hand, cotton is valuable for export to the West for hard currency, and also for exchange with Russia for its hard-currency-earning products—energy and other raw materials. In at least the short-to-medium term, this motive for increasing cotton production will probably counteract the other reasons for decreasing area planted, so production will probably remain fairly stable over the near-term.

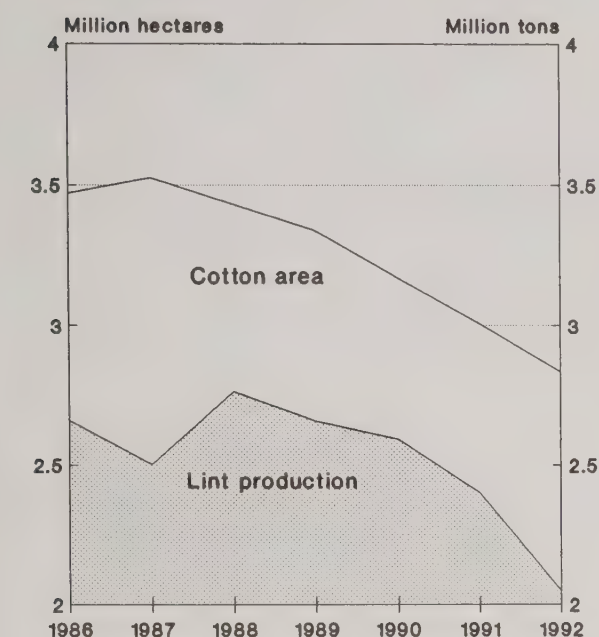
Production in the six cotton-growing republics of the FSU (**Uzbekistan, Turkmenistan, Tajikistan, Kyrgyzstan, Kazakhstan, and Azerbaijan**) declined in 1992/93 for the

fourth consecutive year. Area planted, yield, and production all fell (figure 41 and tables 69 and 70). Although economic reform has progressed slowly in these nations, the more rapid transformation in the European republics has affected Central Asian agriculture. By decreasing real incomes, price liberalization in the European nations has reduced demand for clothing and textiles. The weakness of the ruble and other impediments to trade have also disrupted Central Asian cotton exports to the other republics. Cotton yield and production in 1993/94 could rebound with good weather and a favorable response to new governmental regulations on sales of lint cotton. Yet, area planted is expected to continue to fall slightly as the Central Asian republics adjust further to economic reform.

Many of the Central Asian republics have switched some of their traditional cotton land to grains and other food crops for food-security reasons. This accounts for the 16-percent decline in area planted to cotton since 1989/90 in **Uzbekistan**, where the government specifically asked farmers to plant more grain and vegetable crops. On the other hand, the Government of **Turkmenistan** called for maintaining traditional levels of cotton production and area because it is its most tradeable product. Cotton area in Turkmenistan has decreased only 10 percent since 1989/90 to 570,000 hectares. The decline in cotton area in each cotton-growing republic in 1993/94 is expected to be 3-4 percent, 20 percent below the 1987 peak.

Seed cotton production in the FSU during 1992/93 reached over 6.5 million tons, a 16-percent drop from 1991/92. Production fell in all six individual countries, including an 11-

Figure 41
FSU Cotton Area and Production



1992 estimated.
Source: Statkom SNG.

percent drop in Uzbekistan to 4.1 million tons and a 9-percent drop in Turkmenistan to 1.3 million tons. Cotton area and yield in Central Asia declined 4 and 13 percent.

Lint cotton production was 2.05 million tons in 1992/93, 15 percent less than 1991/92. Uzbekistan accounted for 1.3 million tons, 64 percent of total lint cotton output. Production in 1993/94 is expected to rise 2-6 percent from 1992/93, despite less area planted to seed cotton. New legislation in Uzbekistan in 1993 is expected to motivate farmers to raise yields (through less waste) and increase production by reducing the share of mandatory State sales from 98 to 80 percent. Farmers will have the opportunity to sell their product independently at free market prices.

Price Reform

In the past, the Soviet Government maintained strong control of cotton input and output prices. Price liberalization policies pursued by the republics have sharply increased the costs of inputs, forcing cotton farmers into a tight financial position. In response, the Central Asian governments repeatedly raised procurement prices in 1992 to help maintain the profitability of farms, as well as to induce cotton sales to the State. As a result, the price of Central Asian cotton for interrepublic trade (in rubles) rose close to world levels (using the now generally free Russian ruble-dollar exchange rate). Yet, Central Asian cotton is sold on the world market at a discounted price because of poorer quality and less reliable delivery.⁹¹

Reduced Input Use

As was true of the FSU's entire agricultural economy in 1992, use of inputs (machinery and equipment, fertilizers, pesticides) in cotton production fell. The main causes again were disruption in the interrepublic flow of goods, particularly

Table 69 -- Cotton production, FSU republics

Republic	Average 1981-85	1987	1988	1989	1990	1991	1992
Area Million hectares							
Uzbekistan	1.931	2.108	2.017	1.970	1.830	1.712	1.667
Turkmenistan	0.532	0.633	0.636	0.633	0.623	0.602	0.570
Tajikistan	0.308	0.324	0.320	0.309	0.304	0.296	0.286
Azerbaijan	0.297	0.303	0.299	0.280	0.264	0.245	0.233
Kazakhstan	0.130	0.128	0.128	0.119	0.120	0.117	0.110
Kyrgyzstan	0.044	0.031	0.032	0.027	0.030	0.026	0.022
Total	3.242	3.527	3.432	3.338	3.171	2.998	2.888
Seed cotton production Million tons							
Uzbekistan	5.159	4.858	5.365	5.292	5.058	4.658	4.128
Turkmenistan	1.142	1.272	1.341	1.382	1.457	1.430	1.301
Tajikistan	0.917	0.872	0.963	0.921	0.842	0.820	0.481
Azerbaijan	0.707	0.697	0.616	0.582	0.543	0.540	0.330
Kazakhstan	0.302	0.312	0.325	0.315	0.324	0.290	0.246
Kyrgyzstan	0.087	0.073	0.079	0.074	0.081	0.062	0.052
Total	8.314	8.084	8.689	8.566	8.305	7.800	6.538
Extra-long staple seed cotton Million tons							
Uzbekistan	0.494	0.531	0.561	0.344	0.383	0.404	0.265 ¹
Turkmenistan	0.304	0.372	0.444	0.441	0.445	0.328	0.325 ¹
Tajikistan	0.289	0.276	0.329	0.136	0.253	0.190	0.060 ¹
Total	1.087	1.179	1.334	0.921	1.081	0.922	0.650¹
Lint production Million tons							
Uzbekistan	1.509	1.505	1.732	1.656	1.593	1.460	1.306 ¹
Turkmenistan	0.335	0.380	0.410	0.397	0.437	0.392	0.390 ¹
Tajikistan	0.278	0.276	0.294	0.290	0.256	0.251	0.149 ¹
Azerbaijan	0.212	0.225	0.203	0.192	0.180	0.178	0.109 ¹
Kazakhstan	0.093	0.096	0.099	0.099	0.102	0.098	0.076 ¹
Kyrgyzstan	0.026	0.020	0.024	0.023	0.025	0.021	0.016 ¹
Total	2.453	2.502	2.762	2.657	2.593	2.400	2.046¹

¹ Estimate.

Sources: *Interfax Agriculture Report* No. 15, April 9, 1993;
Attache report No. UR3132, April 20, 1993.

harmful for Central Asia because most of its inputs come from republics outside the region, and increased relative prices for inputs (i.e., a deterioration in cotton producers' terms of trade). Yet, if input prices rise to more accurately reflect real production costs, and farms therefore buy less and produce less, the economy will be restructuring toward a more efficient and market-driven system. The marginal productivity of the lost inputs might be low, such that output does not fall much,

Table 70—Cotton production, use and trade, FSU republics, 1992/93

Country	Area	Yield	Seed cotton prod.	Ginning rate	Lint cotton prod.	Lint imports from FSU	Lint imports from other	Total lint imports	Total lint supply	Domestic lint consumption	Lint exports to FSU	Lint exports to other	Total lint exports	Stock change
	1,000 ha	Tons/ha												
Russian Fed.	0	0	0	0	0	621	0	621	621	602	0	0	0	19
Ukraine	0	0	0	0	0	120	0	120	120	120	0	0	0	0
Belarus	0	0	0	0	0	21	0	21	21	21	0	0	0	0
Moldova	0	0	0	0	0	15	0	15	15	15	0	0	0	0
Kazakhstan	110	2,236	246	31	76	22	0	22	98	44	45	20	65	-11
Uzbekistan	1,667	2,476	4,128	32	1,306	2	0	2	1,308	218	558	618	1,176	-86
Kyrgyzstan	22	2,364	52	30	16	17	0	17	33	28	9	0	9	-4
Tajikistan	286	1,682	481	31	149	0	0	0	149	27	102	40	142	-20
Turkmenistan	570	2,282	1,301	30	390	0	0	0	390	17	242	150	392	-19
Armenia	0	0	0	0	0	5	0	5	5	5	0	0	0	0
Azerbaijan	233	1,416	330	33	109	2	0	2	111	35	47	40	87	-11
Georgia	0	0	0	0	0	11	0	11	11	11	0	0	0	0
Lithuania	0	0	0	0	0	16	0	16	16	16	0	0	0	0
Latvia	0	0	0	0	0	5	0	5	5	5	0	0	0	0
Estonia	0	0	0	0	0	33	0	33	33	33	0	0	0	0
Total FSU	2,888	2,264	6,538	31	2,046	890	0	890	2,936	1,197	1,003	868	1,871	-132

Notes: Lint production is from 1992 crop, trade data are for 1993.

Interrepublican imports and exports are from ICAC estimates and publications of FSU republics.

Lint implied stock change data are the difference between ending and beginning stocks from USDA estimates.

Sources: *Zemlya i Lyudi*, No. 5, January 1993, p. 4; *Interfax* No. 15, 4/9/93; Attache Report No. UR3132, 4/20/93.

at least under conditions likely to prevail for the next few years.

However, cotton is highly vulnerable to certain pests. Consequently, in some areas reduced pesticide use might have caused serious harm. In 1992 the Turkish Government provided **Kyrgyzstan** with about \$2 million, with a portion of it designated for buying pesticides.

Trade and Processing Problems

If the republics of **Central Asia** were a single country, it would be the world's largest exporter of cotton, with an estimated 1.87 million tons of lint cotton exports in 1992/93. **Uzbekistan** accounts for 63 percent of the total. To increase hard currency earnings, these nations have nearly doubled their total external-FSU exports. Cotton exports to Western Europe have substantially increased since 1990/91, such that about 70 percent of Western Europe's cotton imports are from the Central Asian countries. They have also increased their exports to the Far East and Mexico.

While the Central Asian nations' trade beyond the FSUs borders has risen, interrepublic trade has fallen significantly. The main causes are unwillingness to accept rubles to pay for

cotton imports and the diminishing role of government in interrepublic barter trade. The breakdown in trade is particularly harmful to **Russia** because 70 percent of the FSU textile industry is located in that country. Central Asian cotton producers are vulnerable because they have virtually no domestic textile industry and must depend on export sales for their income. In fact, over 93 percent of **Uzbekistan's** cotton production was processed outside the country in 1991/92. **Russia** has historically taken the bulk of Central Asian cotton exports, but now most cotton-growing republics are seeking foreign investment to develop domestic textile industries. A joint U.S.-**Tajik** cotton mill produces terry toweling, and other republics have construction contracts for textile mills with Italy, Korea, and Turkey.

About half of cotton lint production from Central Asia is exported outside the FSU, compared with approximately one-third in the past. **Russia** is the major textile producer in the FSU, but it is completely dependent upon cotton imports. Lower exports to **Russia**, based mainly on barter agreements, are causing serious problems for that country's textile industry. Many textile manufacturers are signing contracts with the cotton-growing republics, but the capital or barter resources to make such contracts are difficult to obtain.

The resulting inadequate supplies of raw cotton in **Russia** are threatening to close 350 textile factories. Hidden unemployment in the sector has reached 70 percent, and workers were not paid wages for several months in mid-1992.⁹² A similar situation exists in the **Ukraine**, where the lack of hard currency to buy raw materials for processing threatens operations for many textile factories. Consequently, the cotton industry has reduced the output of almost all items made of cotton in 1992. For example, one-ply and span cotton yarn fabric output decreased one-third and thread 7 percent.⁹³ Total textile production in Russia declined 38 percent, from 5.3 million square meters in 1991 to 3.3 million in 1992. Consumer

purchases of textiles and clothing have fallen in all the republics, mainly because of the drop in real family incomes.

Fortunately, the situation for **Russian** imports of cotton from Central Asia in 1993/94 looks brighter than for 1992/93, as trade relations between republics improve and barter deals are negotiated. Presently, **Uzbekistan** is negotiating a barter agreement to exchange 500,000 tons of lint cotton for Russian oil, lumber, and textiles. For each ton of cotton the Russian Federation receives, it must pay 9-10 tons of oil, or its equivalent value in lumber or textiles.

Endnotes

1. Throughout the report the abbreviation "FSU" is used two ways. It can mean the country of the former Soviet Union before its breakup, or all 15 republics of the former USSR collectively. "NIS" stands for the newly independent States of the former Soviet Union, and is used interchangeably with FSU. The word "republics" is also often used to mean all 15 republics of the FSU, either before or after the Union's demise. Some of the newly independent States, such as Russia and Ukraine, do not have the word "republic" in their official name. Nonetheless, all fit the conventional definition of a republic, the main feature being that the head of State is not a monarch. "CIS" refers to the Commonwealth of Independent States, and "CMEA" the Council for Mutual Economic Assistance.

2. Commonwealth of Independent States Statistical Committee (StatKom SNG), *Statisticheskii byulleten* 4 Feb. 1993, p. 15 provides Jan. 1993 unemployment figures for various republics.

3. For an explanation of the cause of the inflationary pressure, see *USSR Agriculture and Trade Report*, RS-91-1, ERS, USDA, May 1991, pp. 51-53.

4. *Ekonomika i zhizn'*, No. 6, Feb. 1992, p. 13.

5. This inflation rate conflicts with the rate of 1,470 percent (or equivalently an inflation index of 1,570) given for Russia in 1992 in table 4. The apparent cause of the difference is that a common statistical practice in the republics in the calculation of "annual" growth rates for variables is not to base the growth rate on the actual calendar year. Rather, the growth rate, say for year x , is based on a comparison of the "average" value of the variable during year x and during year $x-1$. This would explain why the inflation rates in table 4, not only for Russia but also other republics, are below actual calendar year rates (as indicated by other data). The growth index in table 4 for per capita money income is also apparently computed using a comparison of average values in 1992 and 1991. Consequently, the estimated change in per capita real income in the table's third column does not suffer from measurement inconsistency.

The change in per capita real income is calculated conventionally by comparing growth in per capita money income and consumer prices. By this measure real per capita income in a number of republics fell by over 50 percent. Yet, the information that changes in per capita real income are usually intended to convey is the change in the real material standard of living. Tables 1 and 2 show that the percentage drop in net material product and industrial output in the republics was much less than the drop in real incomes. Thus, the estimates of the decrease in real income in table 4 appear to be overstated. The reason is that before 1992 consumer prices in the FSU were fixed, causing severely repressed inflation. With the liberalizing of prices in 1992, prices shot up, such that they rose by a larger percentage than money incomes.

6. Local governments were allowed to set retail prices of basic consumer goods administratively. However, the difference between the market and controlled price must be covered by subsidies out of local budgets. Local price controls resulted in urban market prices for meat, butter, vegetable oil, milk, and eggs in Moscow, for instance, 2-5 times those in State stores in the fall of 1992 and early 1993.

7. World Bank, *Food and Agricultural Policy Reforms in the Former USSR*, Washington, 1992, p. 213.

8. Table 5 lists price changes for a number of capital goods used in agricultural production. However, one must consider changes in the prices of the other two inputs, namely land and labor, to understand how production costs in terms of agricultural output have changed. An average of production costs, weighted by shares of inputs in costs of production, would probably show a considerably smaller increase in production costs in terms of agricultural output.

9. *Razvitie ekonomicheskikh reform v regionakh Rossiiskoi Federatsii*, Vol. 1, Goskomstat Rossii, Moscow, 1993, p. 42.

10. Approximately 60-70 percent of domestically utilized grain in Russia is used for animal feed. According to researchers at the Russian Academy of Agricultural Sciences, if Russian cattle were fed with only unprocessed grain, 140 million tons of grain would be required to fulfill the animal feeding needs of the country. If, on the other hand, cattle were fed with the mixed feed currently produced in Russia, the country would require only about 95 million tons of grain. Last, if Russian cattle were to be fed with feed used in EC countries or the Netherlands, the country would require only 23 to 62 million tons of grain per year (*Sel'skaya zhizn'*, 10/23/92, p. 2).

11. Losses of agricultural products in the Soviet Union are estimated at 30-40 percent of production, with the greatest losses coming in transport and storage. Losses of grains are estimated at an average of 30-40 million tons per year, while losses in 1990 totaled 55-60 million tons (OECD, *The Soviet Agro-Food System and Agricultural Trade*, Paris, 1991, pp. 165-66). To put the loss figure in perspective, in 1990 the Soviet Union produced about 218 million tons of grain and imported about 29 million tons.

12. See the Presidential Decree "On the Formation of the State Food Fund for 1992," *Pravitel'stvennyi vestnik*, No. 2, 1/4/92, p. 2.

13. The amount of grain traded through and around private commodity markets could reach as high as 15 percent of grain production, or about half of State procurements in Russia, according to S. Zhurek ("The Development of Agricultural Exchanges During the Transition Period in Russia," *Newsletter for RSEE*, 14:4, 1992, p. 10). Zhurek's figures are ambiguous, for it is unclear whether he cites figures on turnover in commodity markets, which could include trade be-

tween farms, or whether his figures represent off-farm marketings. In the latter case, commodity market marketings in Russia would be about one-third of off-farm marketings.

14. See "Compensation for Production," *Sel'skaya zhizn'*, 6/19/92, p. 1; "On Additional Measures to Ensure the Timely Harvest and Procurement of Agricultural Production in 1992," *Sel'skaya zhizn'*, 7/10/92, p. 2; "General Agreement on Reciprocal Obligations for 1992 of the Government of the Russian Federation and the Council of the Agrarian Union of Russia, the Russian Council of Collective Farms and Other Farms of Farming," *Sel'skaya zhizn'*, 7/3/92, p. 2; and "Subsidies—A Lifebuoy or Clutching at Straws?" *Rossiiskaya gazeta*, 8/4/92, p. 1.

15. "On the Priority Supply of the Agro-Industrial Complex" and "On Measures to Ensure the Fulfillment of RSFSR Law 'On the Priority Supply of the Agro-Industrial Complex'," *APK*, No. 5, 1992, pp. 3-5. The 1993 federal procurement targets are 46 percent of 1992 for grain, 90 percent for potatoes, 23 percent for milk and 22 percent for meat and poultry (*Knight-Ridder Money Center Wire Report*, 4/3/93).

16. On August 1, 1992, from *Ekonomika i zhizn'*, No. 34, 1992, p. 1, and *Narodnoe khozyaistvo Rossiiskoi Federatsii* 1992, Moscow, Goskomstat Rossii, 1992, p. 416.

17. *Krestyanskie vedomosti*, No. 9, 1993, p. 9.

18. On August 1, 1992, from *Ekonomika i zhizn'*, No. 34, 1992, p. 1, and *Narodnoe khozyaistvo Rossiiskoi Federatsii* 1992, Moscow, Goskomstat Rossii, 1992, p. 416.

19. On the Extraordinary Russian Congress of People's Deputies of November-December 1990 and the issue of land reform, see K. Gray, "Individual Farms and Emerging Land Legislation in the Russian Federation," *CPE Agriculture Report*, Vol. 3, No. 6, 1990, pp. 50-65.

20. *Sel'skokhozyaistvennoe proizvodstvo v lichnykh podsoznykh khozyaistvakh naseleniia*. Statisticheskii sbornik, Goskomstat SSSR, Moscow, 1991, p. 9.

21. *Izvestiya*, 10/20/92, p. 1.

22. World Bank, *Food and Agricultural Policy Reforms in the Former USSR*, Washington, 1992, p. 140.

23. These measures were outlined in the Presidential Decree "On Urgent Measures for the Realization of Land Reform in the RSFSR" and the resolution of the Russian Government "On the Procedure for Reorganizing Collective and State Farms" (*Ekonomika i zhizn'*, No. 4, 1992, p. 1, and S. Wegren, "Private Farming and Agrarian Reform in Russia," *Problems of Communism*, May-June 1992, p. 109). The Ministry of Agriculture also issued "Recommendations for the Reorganization of Collective and State Farms," which outlined recommended procedures for reorganization under the three alternatives (*APK*, No. 3, 1992, pp. 7-9 and Wegren (1992), p. 109). Further legislation on the same topic followed in September in the resolutions of the Russian Government "On the Procedure for Privatization and Reorganization of Enterprises

and Organization of the Agroindustrial Complex" (*Rossiiskaya gazeta*, 9/24/92, pp. 2, 6).

24. World Bank, *Food and Agricultural Policy Reforms in the Former USSR*, Washington, 1992, p. 140.

25. World Bank, *Food and Agricultural Policy Reforms in the Former USSR*, Washington, 1992, p. 140.

26. State financial support of agriculture constitutes the largest sectoral fiscal burden of the consolidated budget (757 billion rubles or 17.8 percent of expenditures, *Rossiiskie vesti*, 7/28/92, pp. 1, 3; *Rossiiskaya gazeta*, 8/4/92, p. 1; *Sel'skaya zhizn'*, 6/19/92, p. 1).

27. See *Rossiiskaya gazeta*, 8/5/92, p. 1; *Sel'skaya zhizn'*, 7/3/92, p. 2; *Sel'skaya zhizn'*, 7/10/92, p. 2.

28. *Interfax* 8/13/92, in FBIS-SOV-92-158, 8/14/92, p. 22.

29. See the government decrees entitled "On Extraordinary Measures for Financial Support of the Agro-Industrial Complex of the Russian Federation," *Krestyanskie vedomosti*, No. 5, 1993, p. 5, and "On Subsidy Rates for Livestock Products Sold to the State in 1993," *Krestyanskie vedomosti*, No. 9, 1993, pp. 8-9.

30. See the decree "On State Price Regulation for Bread and Bread Products" in *Vash partner*, p. 1, supplement to *Ekonomika i zhizn'*, No. 7, 1993.

31. World Bank, *Food and Agricultural Policy Reforms in the Former USSR*, Washington, 1992, p. 148.

32. See Chen, K., Jefferson, G. and Singh, I., "Lessons From China's Economic Reform," *Journal of Comparative Economics*, No. 16, 1992 and "A Survey of Eastern Europe," *The Economist*, March 13-19, 1993.

33. Percentages obtained from consultation with members of Ukrainian Committees for Bread Products and Processed Foods, Oct. 1993.

34. Ukrainian Institute of Agricultural Economics, "Price Formation, Taxation, and Investment Policies in Ukrainian Agriculture," Kiev, Oct. 1992, p. 12, along with consultation with economists at the Institute in Oct. 1992.

35. Data from the 1991 and 1992 Ukrainian State Budget documents, Ukrainian Ministry of Finance.

36. However, these data cover vegetables and livestock products and do not include those for field crops, which were harvested in summer and fall.

37. Ukrainian Institute of Agricultural Economics, "Price Formation, Taxation, and Investment Policies in Ukrainian Agriculture," Kiev, Oct. 1992, p. 6, along with consultation with economists at the Institute in Oct. 1992.

38. Ukrainian Ministry of Economics.

39. About 62 percent for grains and 30 percent for potatoes in 1991.
40. Ukrainian Institute of Agricultural Economics, "Price Formation, Taxation, and Investment Policies in Ukrainian Agriculture," Kiev, Oct. 1992, p. 17.
41. *Statisticheskii byulleten*, StatKom SNG, No. 2, 1993, p. 22.
42. *Interfax Agriculture Report*, Vol. 2, Issue 5, p. 2, 1/29/93-2/5/93.
43. *Rossiiskaya gazeta*, 11/13/93.
44. *Rossiiskie vesti*, 12/29/92; *Rossiiskaya gazeta*, 11/13/92.
45. *Sel'skaya zhizn'*, 2/13/92.
46. *Izvestiya*, 5/18/92.
47. *Delovoi mir*, 12/4/92, *Sel'skaya zhizn'*, 12/22/92.
48. *Delovoi mir*, 2/4/92.
49. *Interfax Agriculture Report*, Vol. 1, Issue 29, 4/27/92-5/4/92.
50. "Sotsial'no-ekonomicheskoe polozhenie i razvitie ekonomicheskikh reform v Rossiiskoi Federatsii v 1992 godu," *Ekonomika i zhizn'*, No. 4, Jan. 1993, pp. 13-15.
51. "Eksport syr'ya ne daet pokoya MVES," *Kommersant*, No. 5, Feb. 1-7, 1993, p. 1.
52. *Kommersant*, No. 28, Feb. 12, 1992.
53. "Sotsial'no-ekonomicheskoe polozhenie Rossiiskoi Federatsii v 1992 godu." *Ekonomicheskii obzor*, No. 1, 1993, Moscow, p. 39.
54. *Ibid.*, p. 38.
55. *PlanEcon Finance and Trade Review*, Vol. 4, No. 5, Feb. 1993, p. 7.
56. "Kto zhe glavny kreditor?" *Rossiiskie vesti*, 2/26/93, p. 3.
57. *Interfax* 2/7/93, in FBIS-SOV-93-025, 2/9/93, pp. 6-7.
58. "Aid to Russia tops G-7 agenda," *Financial Times*, 3/26/93.
59. As of April 27, 1993.
60. Each of the Baltic nations has signed "Trade and Investment Framework" accords with the United States, which are less substantive than an actual "Trade Agreement," and allow for negotiations of a trade agreement in the future.
61. USDA total grain figures are on a cleanweight basis and include wheat, coarse grains, and milled rice, as opposed to official FSU numbers which also include buckwheat, pulses, other miscellaneous grains, and unmilled rice.
62. Coarse grains include barley, rye, oats, millet, and corn.
63. *Krestyanskije vedomosti*, 3/28/93.
64. *Interfax Agricultural Report*, No. 17.
65. Goskomstat Rossii.
66. *Narodnoye khozyaistvo Ukrainy*, 1992.
67. *Ekspress-Doklad*, No. 15, 3/25/93.
68. *Interfax Agriculture Report*, No. 12.
69. *Interfax Agriculture Report*, No. 10.
70. *Interfax Agricultural Report*, No. 13 and No. 15.
71. *Vek*, No. 6, 2/12-19/93, p. 1.
72. *Moscow Mayak Radio Network*, 12/18/92, in FBIS-SOV-92-245, 12/21/92, p. 7.
73. *Pravda Ukrainy*, 2/9/93, p. 2.
74. *Uryadovyyi kuryer*, 1/21/1993, Kiev, Ukraine.
75. *Razvitie ekonomicheskikh reform v regionakh Rossiiskoi Federatsii*, Goskomstat Rossii, Moscow, 1993, p. 42.
76. *Rossiiskie vesti*, 2/16/93, p. 2.
77. In Russia, "profitability" is defined as the difference between the average procurement price and the average prime cost of production, divided by the latter.
78. *Statisticheskii byulleten* 3, Statkom SNG, Moscow, Feb. 1993, p. 63.
79. *O razvitii ekonomicheskikh reform v Rossiiskoi Federatsii v 1992 godu*. (dopol. dannye), Goskomstat Rossii, Moscow, 1993, p. 17; *Osnovnye pokazateli trgovli i uslug Rossiiskoi Federatsii v yanvare-noyabre 1992 godu.*, No. 11 (380), Goskomstat Rossii, Moscow, 1992, p. 29; *Statisticheskii byulleten* 2, Statkom SNG, Jan. 1993, p. 45.
80. *Delovoi mir*, 2/5/93, p. 6.
81. *Tekhnicheskiye kultury*, No. 3, 1992.
82. Goskomstat Rossii.
83. *Interfax Agriculture Report*, No. 9.
84. *Knight-Ridder Money Center News Wire*, News #6144, 3/3/93.

85. *Summary of World Broadcasts*, BBC World Monitoring, SU/WO270, 2/26/93.
86. *Summary of World Broadcasts*, BBC Monitoring, SU/WO270, 2/26/93.
87. *Interfax*, Feb.19-26, 1993.
88. *Interfax*, Dec. 11-18, 1992.
89. *Sel'skaya zhizn'*, 10/20/92.
90. FBIS-SOV-92-205, 10/22/92.
91. *Cotton International*, 1993, pp. 54-56.
92. *Rossiiskaya gazeta*, 6/11/92.
93. FBIS-SOV-92-158, 12/11/92.

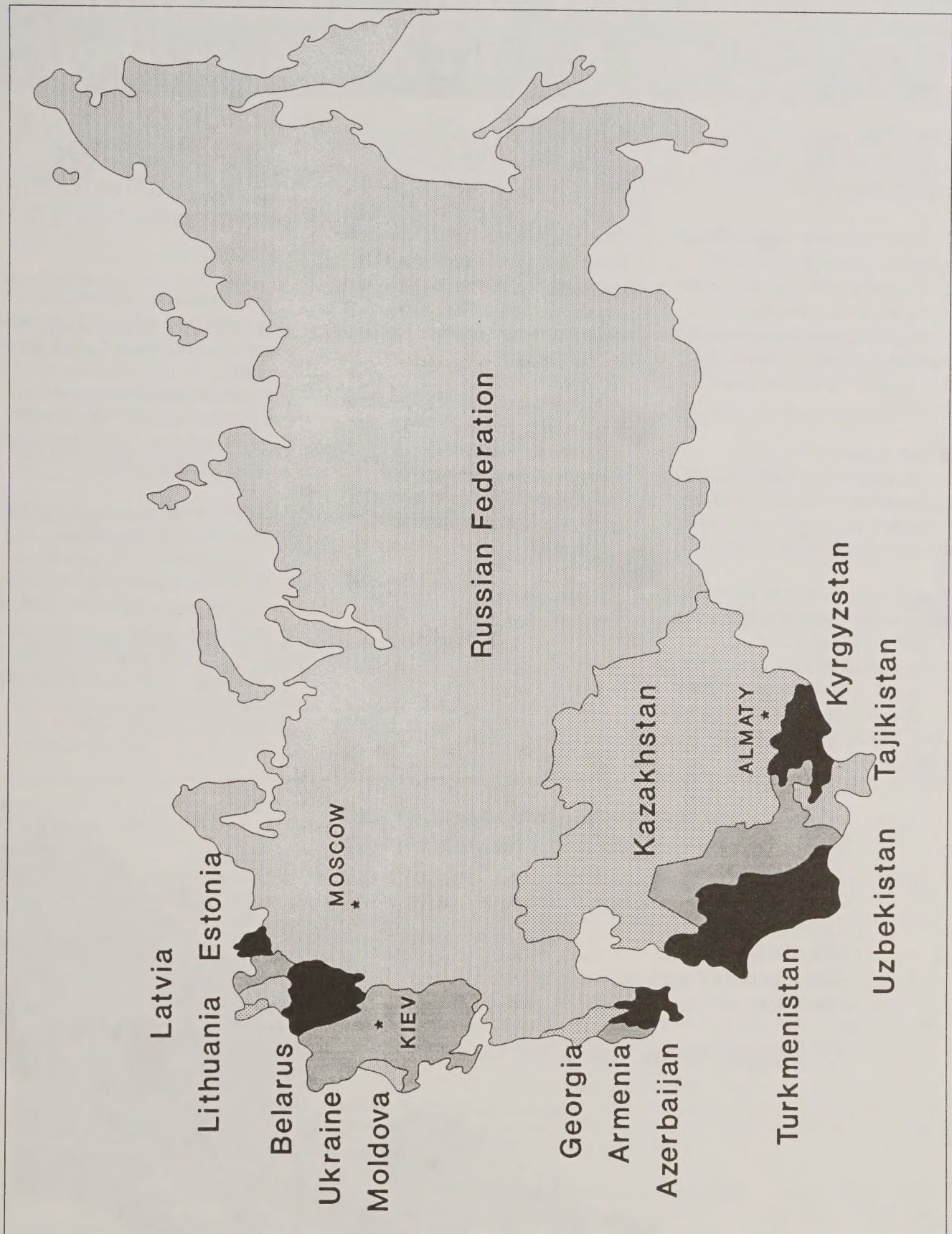
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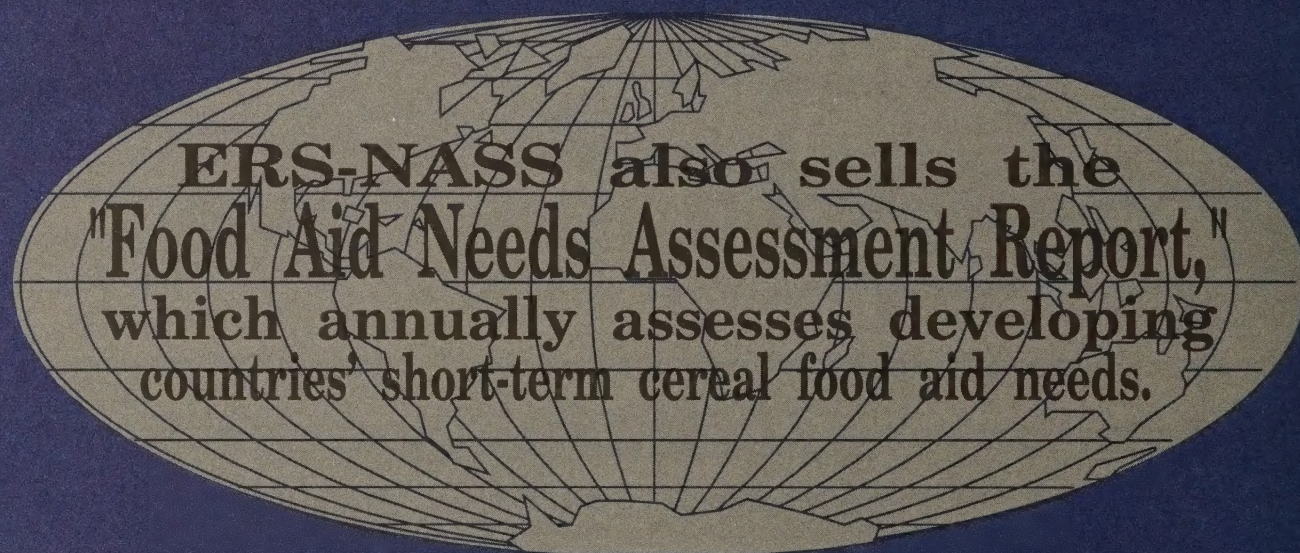
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